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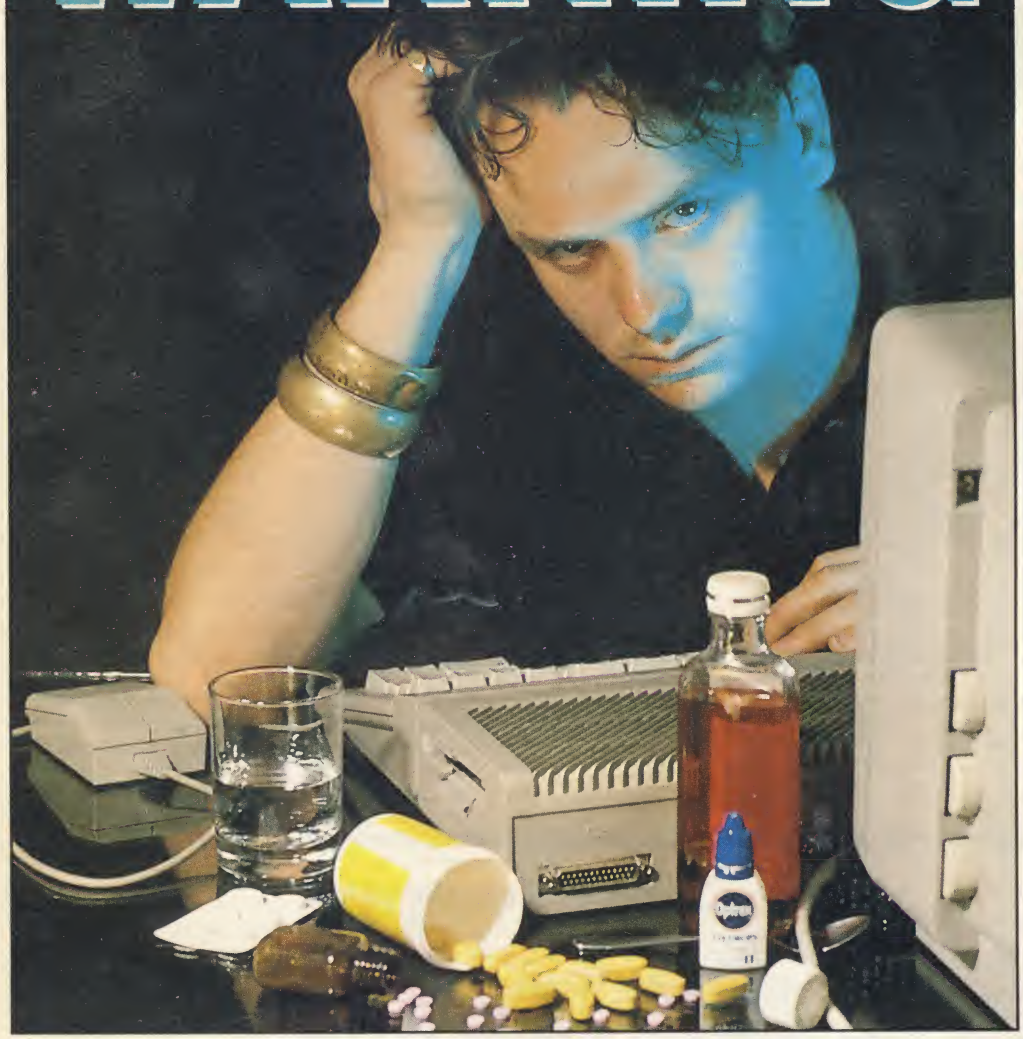

Computers can seriously damage your health

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Stunning new games machine

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The best graphics package for the Amiga

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ONE IN A MILLENNIUM

Space strategy game blasts off

SAVE A MASSIVE £10

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SECTIONS FOR Amiga • Atari ST • PC • PCW • Spectrum • CPC • C64 • QL • BBC • MSX • Archimedes

World's fastest laptop arrives

The world's first 25 Mhz laptop is now available in the UK to people who are prepared to pay for speed.

California based Dolch American Systems launched the Dolch some five months ago but demand has kept it away from these shores. Now Magnerra Innovations is shipping the machine over here.

Magnerra is keen to point out the machine's three slot internal expansion for extra memory, graphics cards and the like, as well as the obvious advantages of high speed processing.

Such is confidence of the firm in Dolch that it reckons designers will be using it for Computer Aided Design – generally regarded as an impossibility on portable screens.

Unfortunately the fully blown model is way out of reach for most of us costing a hefty £7,295. It has 2Mg of RAM, a 40Mg disk drive and weighs a considerable 20 pounds. Magnerra is describing it as "a true desktop replacer". Anyone interested should call 01 906 3945.

• The Dolch vita: World's fastest laptop?

VDU MISCARRIAGE RIDDLE: DOCTORS NEAR SOLUTION

A three year search for the truth behind allegations that computer use can cause miscarriages is nearing completion with researchers currently analysing the findings.

Since 1986 the Health and Safety Executive has been testing on some 400 women in the Reading area who use computers. They hope to lay bare the suspicions of many that computing for pregnant women is hazardous.

Whilst tests have been carried out before by various organisations such as Friends of the Earth this is being flagged as the most accurate of its kind in the world. Researchers at the London School of Hygiene and Tropical Medicine believe that much of the research to date is "very poor" and has sometimes been undertaken with preconceived notions of scandal.

The case tests are setting out to find out why a higher proportion of miscarriages can affect women who work with computers than those who don't. Some of the women involved have experienced miscarriages before, some are first time pregnancies and some have a track record of problem free pregnancies.

One school of thought puts the high proportion of difficulties down to radiation emitted from monitors. However, many hold the view that it may have more to do with posture or stress.

• Radiate and fade away?

The Health and Safety Executive has been at pains to keep its activities quiet since the research began. However, leading researcher Dr Eve Roman told *Express* that the three year experiment has now come to an end and that medical experts are currently poring over the findings looking for a common link.

"We decided to take a different approach and to validate the outcomes as carefully as possible. Some research in the past has been poorly designed but we think we've overcome that." She said that the definitive findings would be published before the end of this year.

A survey by the Council of Civil Service Unions in 1984 caused an uproar when it found a 20 per cent higher incidence of reproductive troubles amongst women using computers.

The Reading experiment will be studied with considerable interest by a multitude of organisations and individuals campaigning for strict controls on VDUs. Founder member of VDU Workers Rights Tony Webb welcomed the research but expressed concern that tests on 400 women was still not a big enough project.

"We all want to be reassured that no attempts are being made to muddy the water. I don't know how significant this is going to be but it's rather like trying to find a needle in a haystack." However, he did state that the doctors working on the project are highly regarded.

"All responsible research is useful and it really can prise open opportunities to undertake large scale studies." VDU Workers Rights itself has gained the support of some 100 Opposition MPs including the spokesman for trade and industry Michael Meacher.

Webb also called for hardware manufacturers to act on their own initiative and cut down radiation from computer monitors. Both IBM and Olivetti have been praised for modifying their screens. However, some manufacturers have not made attempts to change their kit up till now.

Notably, Amstrad has come under attack for the high radiation emission from its PCW and PC ranges. Webb measured 200 times more radiation from an Amstrad PC screen than from an IBM one. Even so, Amstrad machines do come within Governmental safety standards. And there is no definite proof that radiation is the cause of miscarriages or any other physical problems.

The Reading experiment aims to find out exactly why more miscarriages occur amongst computer users.

• The hazards of working with computers are outlined in this week's feature on page 15

VIRGIN TERRITORY

Roving tycoon and Virgin supremo Richard Branson is so keen on Sega hardware that he's signed a £100 million deal with the Japanese to sell its consoles here in the UK.

Branson zipped over to Japan a couple of weeks ago on the inaugural London to Tokyo Virgin Airlines flight to tie up the deal. And once there he couldn't resist a ride on Sega's tricky prototype driving coin-op.

From now until 1994 Virgin will be pushing the Sega furiously in an attempt to woo thousands of potential consolers. It also means that the firm will be handling Sega's exciting Megadrive 16-bit system (*Express* 4).

Much of the trade is gearing up for a console explosion over the next few years. It is widely believed that millions of Europeans hitherto uninterested in gaming will see the light.

Branson himself enjoys the odd zapping session at his luxury home on a Sega console.

More Sega news on page 5.

• Driving force: Branson consoles himself

ATARI SHOCKS WITH TINY GAMES MICRO

From Joe Espazito in Chicago

Atari stunned the gaming world at the Chicago CES this week with the announcement of a surprise new handheld games machine.

As first suggested in *Express* (*Amiga Blit*) the tiny new computer was designed by the same people who put Commodore's Amiga together. However, it is understood that no Amiga technology is being used.

Atari's Portable Colour Entertainment System is billed as the first such machine in the world. Previous handheld efforts have always been in black and white.

It boasts a palette of 4,096 colours on a screen measuring 3.5 inches diagonally. The whole machine weighs about one pound and is the size of a video cassette.

Originally the machine was developed by games company Epyx. However, Atari has stepped in and bought up the rights to the machine possibly as a result of Epyx's financial troubles at the beginning of this year. For the moment Epyx has exclusive rights to produce any software.

The machine I saw was previewed to a select number of journalists and industry top brass. Atari boss Sam Tramiel was clearly very proud with his offering. In a direct dig at Nintendo he said: "We haven't been sitting back and letting profits go off shore to manufacturers who are totally unrealistic about offering consumers value. It wouldn't have done any good if we had offered a simple slow flat and grey screen."

Designers Dave Needles and RJ Michaels were in evidence. It looks as though these two have been working hard to get their baby together on time.

• Tramiel: Proud with tiny gadget

The Atari Portable Colour Entertainment System runs at 16 Mhz (claimed to four times faster then any "rivals"). It can handle 16Mb cards and runs on six AA batteries. It can also be run from a mains socket or cigar lighter socket.

Epyx currently has five games ready. They are *California Games*, *Blue Lightning*, *Impossible Mission*, *Monster Demolition*, *Time Quest* and *Gates of Zendocon*. Four more games are promised for autumn. In the meantime both Epyx and Atari are talking to third party software publishers for licensing deals. The software looks like a credit card and slots into the machine.

It should arrive here in the UK early next year although plans are afoot to sell it through Schipol Airport Duty Free in Amsterdam – a traditional venue for whizzo new electronic gadgets.

No UK price has been fixed as yet although it should sell here in the US for $150. Whilst that's a good deal more expensive than the Gameboy this is a far better machine.

There can be little doubt that this machine has impressed those of us who descended on Chicago. The picture quality is very nice and doesn't leave you rubbing your eyes. And four channel stereo sound is an added bonus.

We'll be showing pictures of Atari's tiny computer next week.■

NINTENDO'S REPLY

Also at the CES was Nintendo's new handheld machine, Gameboy.

It's somewhat smaller than the Atari machine and offers only a 2.5' black and white LCD screen. *Express* tinkered with the machine for a while – picture quality was passable although not brilliant. The stereo sound is remarkably good. US price will be about $89 – less in the big stores.

Like the Atari machine Gameboy runs thin credit card like cartridges. It also has a comms link enabling two separate machines to be linked for a two player battle.

Nintendo was running a combo game incorporating all the *Mario Brothers* releases. The game is called called *Super Mario Land*. As always with Nintendo, UK availability is uncertain.■

• Nintendo: Can Gameboy clean up like this baby?

An electronic heaven

CES Report from Chicago, Illinois

The Consumer Electronics Show has once again proved itself to be a pleasuredome for thousands of people milling and poking around.

Its sheer size made one commentator here liken it to "a small Latin American country". Exhibitors are up something like 15 per cent.

One strange new strain of gadgets are attracting a good deal of attention. Toshiba, Sony and Canon are showing off Still Picture Systems. These allow you to take a photograph and run the results straight through a computer. The film is held on a 2 inch disk. Sony's Mavica system costs $599 with an extra $299 for the computer interface.

More mainstream products are in abundance. Mindscape is showing preliminary pictures of *Star Trek 5* based on the movie. Cinemaware and DataEast are both concentrating heavily on sports such as basketball American Football.

VistaVision is attracting lots of visitors with an interface box for video recorders. It's an upgraded theme on interactive video games. Instead of looking at bits of paper every time you stop the "game" movable graphics pop up giving all the options.

As always Infocom is in evidence. It's talking about a new graphics adventure based on the legend of King Arthur. And the *Bards Tale* people Interplay are getting an epic together called *Dragons World*.

Also being played a hell of a lot is a two way coin-op machine which pits two people against each other in different machines.

For computer enthusiasts and gadget freaks this whole jamboree is something approaching heaven itself.■

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NEW COMPUTER EXPRESS

COMMENT

Healthy and wealthy and wise?

Smokers who used to insist that their Uncle Fred smoked 90 a day and lived to be 110 are thinner on the ground these days. The certain health hazards are at least acknowledged, if not avoided.

Ditto seat belts. The infringement of civil liberties brigade (whose same Uncle Fred survived a 130 vehicle pile up without one) is silent now as it's been shown that they actually do save lives.

Will the same thing happen with VDUs? Radiation from the VDU, uncomfortable workstations and stress from computer-oriented work is affecting all of us, from the home gamester to the copy typist. Effects are negligible in most cases, but we must still be aware of them.

There are no laws at all concerning any of these points in Britain, though the European Commission is pushing the EEC countries to do so by 1991 and some laws have already been passed in parts of the US. These restrict the hours that can be spent working at a VDU, but ignore the radiation hazard. This is still subject to argument over how to interpret the statistics of miscarriage 'clusters' in VDU workplaces.

And eye damage, RSI, stress... the list goes on. Meanwhile those of us who work all day at VDUs – especially those of us planning families – can only lobby our MPs, write letters, and worry, because it doesn't look like legislation is on the way yet.

Perhaps, as in the recent child leukæmia cases at Sellafield (where a cluster of cases occurred near the site of the nuclear reactor) it will take litigation to bring the matter to a head. It is surely only a matter of time before a woman who has miscarried takes legal action against her employer who refused to transfer her to non-VDU work during her pregnancy. And when that happens, the only winners will be the lawyers.

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HARD AND FAST

With its fifth anniversary celebrations just behind it FAST has embarked on a tough new campaign to curb software piracy.

The Federation Against Software Theft is to advertise to education and business users as well as home users in an attempt to warn people off copying software.

And in a two pronged attack FAST is also to ask the Government to lay down guidelines which will prod the police and Crown to take piracy more seriously. FAST says some police authorities are reluctant to get involved despite the huge amounts of money often involved. Policy guidelines are presently muddled.

It also wants trading standards officers to be given the authority to investigate software crime.

"We're calling on the Government to recognise that software theft represents a significant and growing crime. Appropriate training and resources should be made available to ensure that the public can call upon public enforcement and prosecution services for assistance in all serious instances of criminal activities," says the tough talking body.

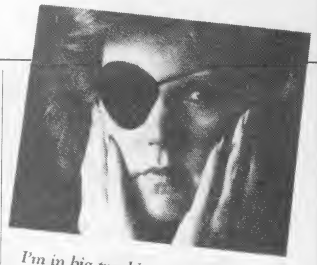
FAST's long battle to tighten up piracy laws is succeeding with the Copyrights, Designs and Patents Act being brought into force at the beginning of August. This effectively means increased penalties for offenders and popular bit copying devices being made illegal.

FAST's publicity campaign will run through highbrow publications such as the Financial times and The Economist in order to make businessmen aware of piracy. It is also being aimed at industry employees through brochures and low end users through the popular press, radio and even television.

Education is being singled out as a problem area with hard hitting leaflets being distributed to authorities and schools throughout the country.

FAST says: "Software copyright is not respected. Direct enforcement can be used against those who trade in illegal copies of software but extra copies are often made by 'innocent' users."

Meantime, FAST has appointed a second enforcement officer to join veteran campaigner Bob Hay. Robin Lawrence, 29, has previously worked alongside FAST as a trading standards officer.■



• FAST work: One of the new anti-piracy messages

HACKATTACKER

A new device to help combat computer hackers has been launched by Cream Communications.

Com-Lock operates as a gate between the computer's modem and the telephone line. Any hackers trying to crack codes and therefore enter a system have to get past the gadget.

Anti-hacking systems usually rely on an access code which must be deduced by crafty code crackers. This involves a high tech game of trial and error whereby the hacker will spend hours trying to solve the puzzle.

Com-Lock is claimed to block this route. It will cut off any caller who fails to get the right code straight away and any subsequent attempts will be monitored. After ten incorrect attempts the system enters a blocking mode which cuts off even correct entries for thirty minutes.

Any hacker won't know he's being refused access – it keeps electronic burglars interested by giving the impression that they're going undetected. The gadget sounds the alarm giving police and telephone authorities time to trace the call.

Cream reckons Com-Lock will "revolutionise the field of computer protection" and says that £950 "is a small price to pay for data protection and peace of mind".

• Lock awe: Pouring cold water on the plans of the hackers

Brought to book

A student at Cornell University in New York has been chucked off campus for clogging up an enormous computer network.

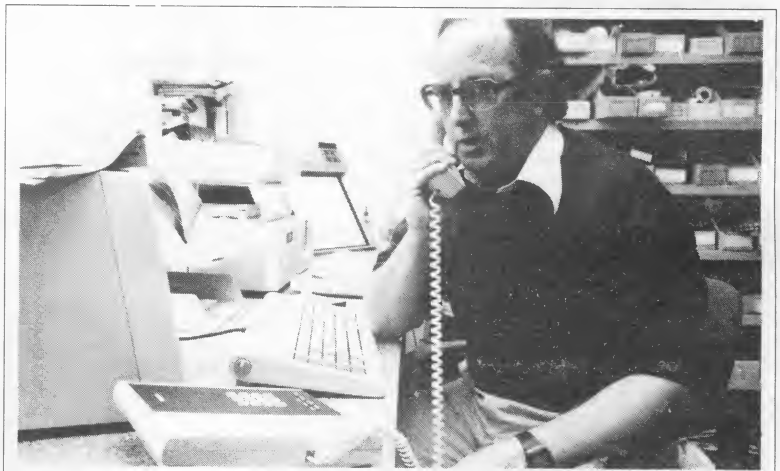
Robert Morris, 23, wrote a program which wreaked havoc on as many as 6,000 computers in universities, corporations and military installations. Whilst no criminal charges are being brought against the prankster he has been suspended from the school until autumn 1990 for "violating the school's code of academic integrity".

Phew what a PC scorcher

Thousands of pounds worth of Sanyo PCs have been burned in a major fire at the firm's warehouse in Warrington.

Although no one was hurt, a hundred firemen were drafted in to combat the blaze which claimed tons of electronic jiggery. Initial reports suggest that arson is not involved although police have not ruled this out

Gutted Sanyo expects some disruption to its normally smooth operations although it is already planning a new 35,000 square feet warehouse.



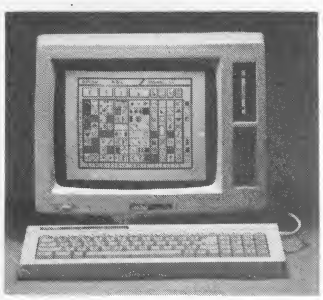
This is Bruce Gordon – the extremely clever chap who has spent the last few years designing MGT's SAM Coupé micro.

And with the much publicised machine only a few short months away from launch he's decided to set up a 24 hour hotline to satisfy all your enquiries about the beast. Gordon's recorded message will be updated every week with the latest in developments. The SAM hotline is 0792 791275.

PCW owners promised cheap hard disk

A low cost hard disk for the Amstrad PCW is being developed by Isenstein.

Costing a respectable £299 the 20Mb monster should be available later in the year. Most hard disks for Amstrad's word processing favourite cost at least £400.



• Hard bargain: 20Mb drive for the PCW

The disk is likely to be called simply The PCW Hard Drive.

"There have been hard drives around for the PCW for some time but we felt it would be a good idea to do something really affordable," said Isenstein boss Dave Rathbone.

So far developers have only managed to come up with a prototype. Other Isenstein projects have put production back a few months.■

CONSOLEMANIA?

If industry pundits are to be believed this Christmas will see an amazing explosion in the popularity of games consoles.

Big gun Virgin/Mastertronic is so convinced of this that it is predicting 200,000 owners of the Sega console (which it sells) in Britain by the end of this year – that's twice the current figure.

Philip Ley, the man in charge of the Sega, told Express: "That figure will be easy to attain. I'm sure we'll see thousands upon thousands of people who've never bothered with computer games playing consoles this Christmas.

"We're also going to see a lot more games being made available. I've got five new titles coming over in the next month and five more after that."

• Leying it on thick: Console explosion predicted

The Sega console costs £79.95 for the basic pack and £129.95 for the Super System. Sega's impressive 16-bit Megadrive will be here early next year.■

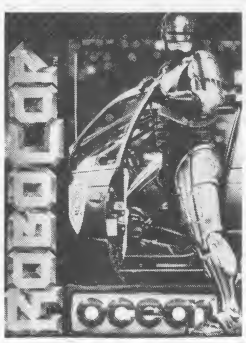
ROBOCOP BLASTS CHART RECORD

Ocean's extraordinary game Robocop has smashed the record for longest consequetive weeks at number one.

Robocop has been sitting pretty at the top of the charts since it became the surprise Christmas number one. That's a total of eighteen weeks.

Previous record holder was Soft Aid which lasted 17 weeks. However, that was a charity compilation costing only £5.99. Out Run sold brilliantly but only lasted eight consequtive weeks on top of the pile.

Ocean scooped up the rights to the film tie up when it was only at script stage. At that time nobody knew if the story of a half man, half machine cop would catch on.



• The future of law enforcement: Ocean cops chart record

"It was all uncertain. The film could have been a cheap and tacky affair. I'm sure we didn't think it would be so successful at the time," said Ocean's Gary Bracey when Express broke the news to him.

Whilst the big name tie up elevated the game straight to the top its gameplay has also been commended. It received warm reviews throughout the press and has since been turned into a successful coin-op machine.

Ocean doesn't think it will be the biggest selling game of all time, however, as game titles sold more two years ago than they do now.

Meanwhile, Amiga owners will be pleased to learn that their version is coming out in a couple of weeks.■

JUMBO SPECCY GAMES SALE

Britain's biggest collection of Spectrum games is going up for sale in aid of charity.

Five year old fanzine *The Bug* has decided to sell off its treasured collection following its decision to stop publishing. The lads who ran *The Bug* are offering its extensive catalogue of games to anyone interested.

However, they hope some buyer will step in and buy the archived collection as a job lot. "We've got thousands of programs and it's going to be a bit sad to see them all go. but it is for a good cause," said The Bug's Jeffrey Davy. Unlike most professional magazines The Bug has kept its collection in good order through the years.

Also up for grabs is a large collection of C64 games as well as "bits and bobs" from most other machines.

Anyone who wants a catalogue should apply to The Bug, 28 Leaside Avenue, Muswell Hill, London, N10 3BU enclosing a sae. Proceeds will go to various charities including housing organisation Shelter.■

Snippets

➤ *A video digitiser for the Amiga has been launched by Power Computing. Called Video-On it costs £199. Potential users will be interested to learn that, unlike many digitisers, it doesn't require the use of a camera filter.*

➤ *Populous - EA's game which gives you divine rights – is currently being converted to the PC. God's gift to gaming should arrive in the autumn.*

➤ *And talking of games conversions, Anco's extremely fast overhead soccer frenzy Kick Off is to be made available to C64 owners within the next few weeks. An Amiga version has just been launched.*

➤ *An adventure game for young mathematics students is now available for the Beeb. Kids who hate boring old maths might find the adventures of Puff the Drag-on a better way of learning fractions. It costs £20.*

➤ *PC owning businessmen (of which there are quite a few) might be interested in Fassett. It's a way of controlling all your fixed assets and costs £99. More on 01 455 2117.*

TOP 20 *Full Price* GAMES

1	**Robocop** OCEAN	*Spectrum, C64, CPC, ST, Amiga, PC, MSX*
2	**Microprose Soccer** MICROPROSE	*Spectrum, C64, CPC, ST*
3	**Dragon Ninja** OCEAN	*Spectrum, C64, ST*
4	**Populous** ELECTRONIC ARTS	*ST, Amiga*
5	**Emlyn Hughes** AUDIOGENIC	*Spectrum, C64, CPC*
6	**Operation Wolf** OCEAN	*Spectrum, C64, CPC, ST, Amiga*
7	**Arcade Muscle** US GOLD	*Spectrum, C64, CPC*
8	**Barbarian 2** PALACE	*Spectrum, C64, CPC, ST*
9	**In Crowd** OCEAM	*Spec, C64, CPC*
10	**Run the Gauntlet** OCEAN	*Spectrum, C64, CPC, ST, Amiga*
11	**Middle Earth** MELBOURNE HOUSE	*Spec, C64, CPC, ST, Amiga, PC*
12	**WEC Le Mans** IMAGINE	*Spectrum, C64, CPC, ST, Amiga*
13	**Crazy Cars II** TITUS	*Spectrum, CPC, ST, Amiga*
14	**Fun School 2** DATABASE/MANDARIN	*Spectrum, C64, CPC, ST, Amiga, BBC*
15	**Football Manager 2** ADDICTIVE	*Spectrum, CPC, ST, Amiga, PC*
16	**Afterburner** ACTIVISION	*Spectrum, C64, CPC, ST, Amiga*
17	**Running Man** GRAND SLAM	*Spectrum, C64, CPC, ST, Amiga*
18	**Renegade 3** IMAGINE	*Spectrum, C64, CPC*
19	**Double Dragon** MELBOURNE HOUSE	*Spectrum, C64, ST, Amiga, PC*
20	**Giants** US GOLD	*Spectrum, C64, CPC*

TOP TEN *Budget* GAMES

1	**Bomb Jack 2** ENCORE	*Spec, C64, CPC, C16*
2	**Treasure Island** CODE MASTERS	*Spec, C64, CPC*
3	**Ghostbusters** MASTERTRONIC	*Spec, C64, CPC*
4	**Turbo Esprit** ENCORE	*Spec, C64, CPC*
5	**1942** ENCORE	*Spectrum, C64, CPC*
6	**SAS Combat** CODE MASTERS	*Spectrum, C64, CPC*
7	**Subway Vigilante** PLAYERS	*Spectrum, C64, CPC*
8	**Road Runner** KIXX	*Spectrum, C64, CPC*
9	**Fast Food** CODE MASTERS	*Spectrum, CPC*
10	**720** KIXX	*Spec, C64, CPC*

RE re-entry • NE new entry • Last week's positions

Compiled by Gallup

The charts shown are based on the Open Market, that is retailers who stock a broad range of products. All charts shown are copyright of Gallup.

COMPUTERS "DISRUPTIVE"

The transformation to computers hasn't been so happy for the Liverpool passport office. Since it installed a computer system last December production has fallen from 90 applicants a day for each examiner to about 55.

Whereas the system used to rely on simple handwritten details all info has to now be fed into the computers. This, according to employees, is most time consuming. Such is the extent of the problem that a backlog of 200,000 applicants has built up.

"The computer has a memory bank to cope with a turnover of four weeks. But such is the backlog that it needs to be updated all the time. It's really slow," said one of the passport officers. More than 100 of the workers were last week on strike as a result of the pressures.■

A talking version of Arnor's word processing pack Protext is to be launched for the Amiga.

The package has been put together for the visually handicapped. It will speak each letter as it's typed or each word using the Amiga's voice synthesizer. No price as yet.■

Simulation giant MicroProse is working on F15 Strike Eagle 2. First impressions are that graphics and gameplay are even better. Meantime Gunship is due soon on the Amiga.■

GUARDIAN DTP STRIKE AVERTED

Computer technology marches on but jobs saved

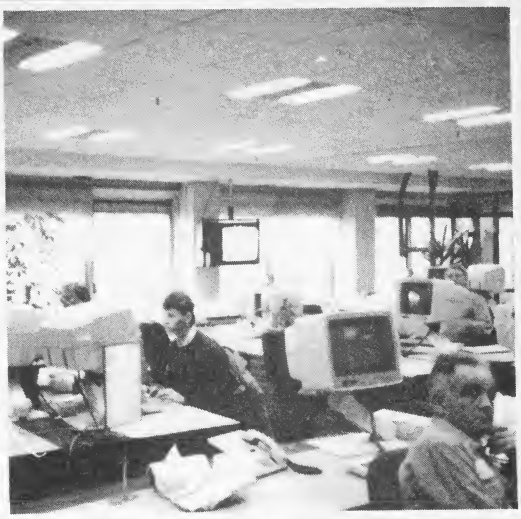
Editorial staff on *The Guardian* came within forty minutes of industrial action last week over the introduction of new computer technology to the paper's Farringdon offices

The paper is to become the first in "Fleet Street" to completely succumb to desktop publishing technology and to introduce full page on screen make up. Relatively new dailies *The Independent* and *Today* were both set up using DTP technology but *The Guardian* is the first to make the transformation from traditional old methods to new.

National Union of Journalists members were worried that their new efficient office would mean compulsory redundancies for fellow workers – a situation which has occurred many times in the past. They also asked for extra payments to cover the training and general chaos new technology often results in.

With the threat of a one day strike hanging over them, management and leading union members embarked on twenty hours of negotiation.

With forty minutes to go until the deadline, management agreed to much of the NUJ's terms, promising no compulsive redundancies and an average increase in pay of 8.8 per cent. Sub editors (who will be most affected by the change) will be paid more than reporters who won't be so much affected.



• Making the news: The Guardian's hi tech problems resolved

The Guardian currently uses an ATEX newspaper publishing system as well as hundreds of Tandy PCs and portables.

It is thought likely that Apple machines will be brought in to handle new DTP requirements.■

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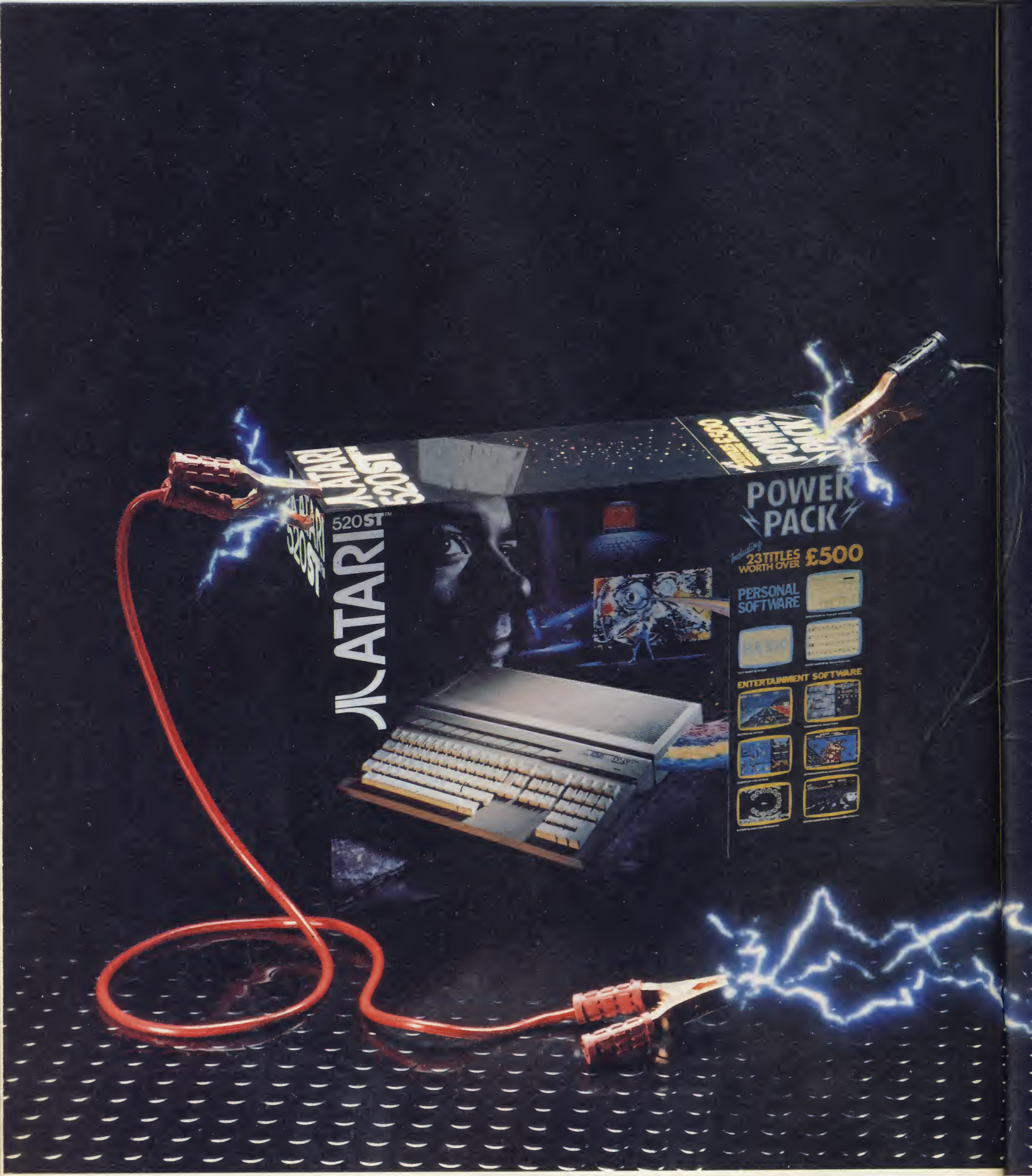

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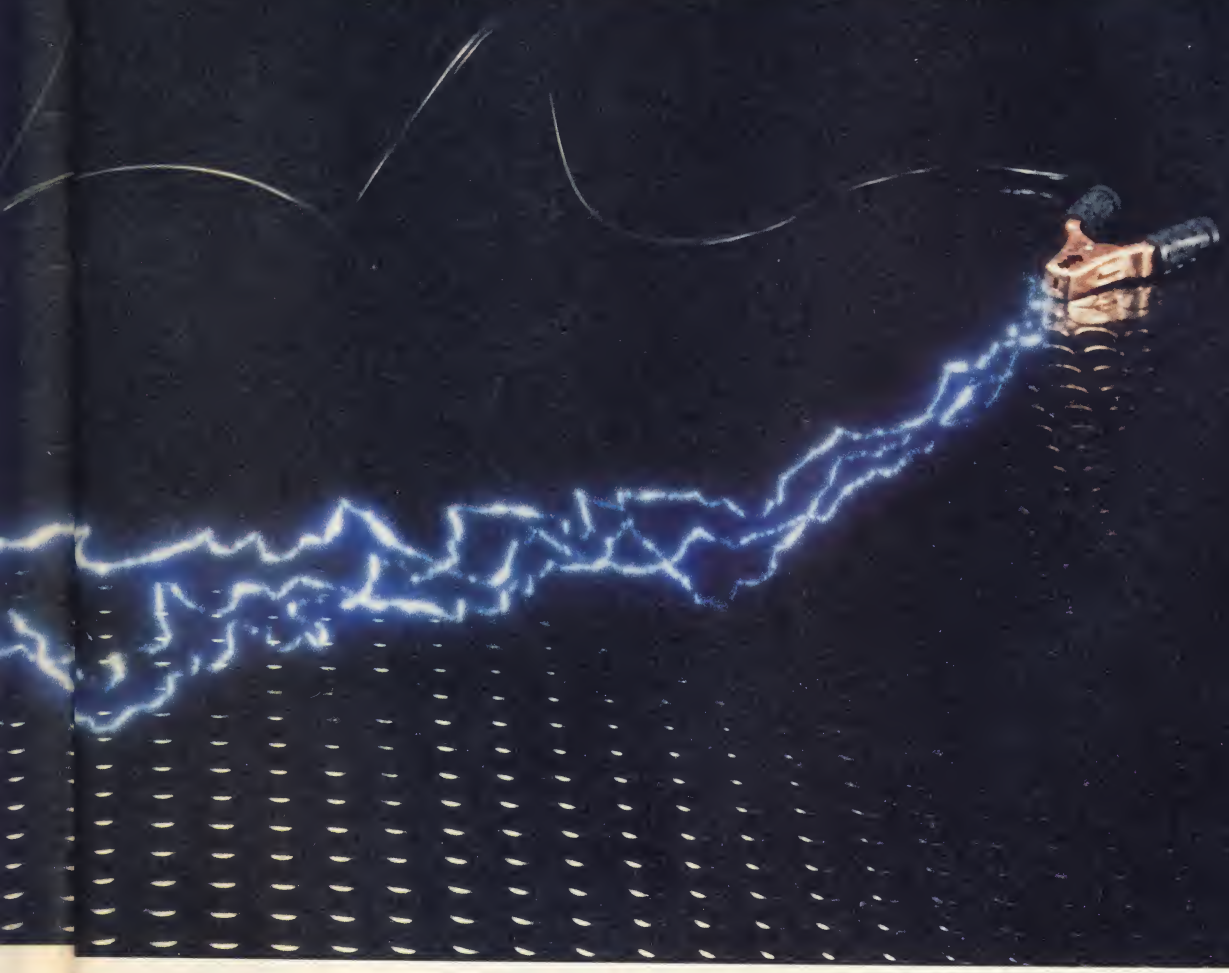

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EXPRESS MAIL

Dear Reader

More pages packed with another selection from our postbag and Rob Ainsley's replies. Have you got something to say? Make your voice heard in computing's liveliest letters page! Send your contributions to: Express Mail, 4 Queen Street, Bath, Avon BA1 1EJ

PS. Sorry, we just don't have the time to give personal replies, whether you include an SAE or not. We're too busy putting Express together!

EXCESS PRAISE

1 Are you going to do any more *New Computer Excess* supplements like the one in your April 1st issue? I thought the first one was very good, great laugh and why not.
2 How about a joystick round up, and let's see this year's models.
3 Are the dates for the PC Show at Earls Court this year set yet? As far as I know they are the 27th Sep – 1st Oct with the last three days open to the public as usual. Is this definite?
Steven Allan, Edinburgh

● ***1. Yes, possibly for our first birthday issue in November. It depends on when we can get some expenses for another planning meeting in Hatchett's, the pub next door to our offices.***
2. Coming soon.
3. Yes, those dates are definite. We'll be reporting on it of course. Details on 01-486 1951.

WHITE ELEPHANT

If you saw 'Blue Peter' on 15th May then you would have seen the new Archimedes A3000. It was first prize in a competition. It was called the BBC A3000 (sounds familiar?). They had 3 up and running. One was running *Zarch*, one had the *Blue Peter* symbol and one had the 'Render Bender' rag tracing program. One of the presenters (the big one) said, "It won't be in the shops for a while" but no price was given.
Tim Jelves, Leicester, Leics

● ***The Beeb is getting quite keen on promoting their machines, as anyone who saw the long adverts for Beebs and Archies called 'The Software Show' a few weeks ago will testify. How long before Mark, Caron and Yvette show you how to make a disk box holder for your BBC Master or a mouse mat for your Archie A3000?***

GET AHEAD

An unattractive tip, sticky problem! A little tip for anyone that will benefit from it.
Before putting on a new label, peel off the protective backing then very carefully stick part of it on your forehead, yes that's right, on your forehead. Twist it and stick it on your forehead again. Repeat until the label loses most of its sticking power. Here's one I did earlier, you'll get to know how much to do it. If done right the corners won't peel up or anything.
If you think it's a naff idea at least give it a go, and it peels off in one go. Peel it slowly. It works for me.
Robert Hudson, Pontefract, West Yorkshire

● ***Er – yes. If you see anyone in the pub tonight with a label stuck on their forehead which says 'five and a quarter inch large capacity' you'll know what they've been up to.***

CHANGING SIDES?

Is there ever going to be an Amiga Emulator for the ST or an Amiga ST emulator? In various (ST and Amiga) PD catalogues there have been various emulators claiming to do what seems the impossible! Surely it would be possible for an emulator to be available for either brill machine if the emulator is hardware as well as software!
Rob Chapman, (member of Rost-PD Demo writers!), Kenilworth, Warks

● ***Well, an Amiga emulator for the ST was advertised two years ago by a certain company which promptly went bust. We've never heard of one that works. Frankly I doubt there'll ever be a viable one.***

IF A JOB'S WORTH DOING

I read the letter from Timothy Smith (*Express* 29) regarding the shortage of staff in the computer industry and how he could not get a job.
I left school with 4 GCSE grade Ds (CSE 2-3), 1 GCSE E and 2 GCSE Fs and I am now working in computer operations which basically entails keeping the system running and doing data backups in the morning. There is currently a job in ops with my company and we have had one application for it in two weeks. I think that this proves that there are plenty of jobs out there for someone to fill and that anyone with a reasonable amount of knowledge in computers can get a job and work their way up rather than start at the top as Mr Smith is trying to do.
S Lyle, Chelmsford, Essex

● ***Tim said he was finishing his HND in Computer Studies, so you can understand that he'd expect to start a little higher than the bottom. As you don't say where you advertised this op job, or how much you're paying, it's difficult to make a comparison.***

THE YOUNG ONES

I started programming when I was 8 with the BASIC language. I am now 12 and program in Assembler and BASIC on the C64. Do I qualify to be the youngest programmer?
Mark Reynolds, Shrewsbury, Salop

● ***So far, yes...***

NASTY BITS

If we don't get our Atari 8-bit column, I hope that:
a) your hard drive gets a virus and turns into a floppy
b) you get caught 'peeking'
c) your wife sees all those bytes (also very embarrassing – can sometimes cause a severe reduction in pokeing)
d) BT cuts off your modems (stops peeking and pokeing completely)
R Le Baigue, Wellingborough, Northants

● ***Just as well the fortnightly Atari 8-bit column is back next week. And that I'm not married.***

• Do you know of any really young programmers?

DOUBLE CHEQUE

On May the 8th I sent a letter to Elite Micros in response to their advert (page 40, *Express* 25). As requested, I enclosed a cheque for £1.00. In response, I got a note scribbled on the back of my letter – no catalogue or money back.
I consider this a 'con' and hope this letter will save other people losing money.
David Dyball (age 11), Exmouth, Devon

● ***Perhaps they haven't cashed your cheque; ask your Mum or Dad to check their bank statement. (Unless, of course, you wrote the cheque yourself, in which case, what are you doing with a bank account?)***
If they have cashed it, get back to them – and us.

DELAY, HOLD UP, DEFER, SUSPEND, POSTPONE, PUT OFF, DEMUR...

Having today telephoned Database publications, I can now confirm without a shadow of a doubt that the Spelling Checker and Thesaurus for the Amstrad PCW computer will hopefully, possibly, maybe (well they are working hard at it) be ready in one week. ➤

Snippets

FOURTH REICH

I hope the 10p price increase in your mag isn't a sign of things to come... It's just how Hitler and his jackbooted Nazis came to power... I think.
Neil Barnes, Birmingham, West Midlands

● ***I don't think inflation at 8% quite matches that of Germany between the wars, but if we start pegging the price of Express to the Gold standard and annexing other magazines, then you can worry.***

WAGGISH TALE

...Twenty years ago we were told to indent five spaces before every new paragraph. We do it no longer because the computer doesn't like it. Is this a case of the tail wagging the dog?
Mike Coleman, London

● ***Or even a watched pot calling the kettle black, or spoiling the child for a ha'porth of tar?***

BIT OF PRAISE

...Thanks for supporting the Atari 8-bit. Nice to see more articles for the best machines and not the over publicised Speccy computers!...
An Atari 8-bitter, Southampton

● ***Oi, what's wrong with the Speccy? (Answers on a postcard please...)***

OLD HAT

Jason Holborn (*Amiga Blit*) must walk round with his hat pulled over his eyes... The C64 the Amiga of the 8-bit world? No! The Atari 8-bit was...
D Duke, Ilchester, Somerset

● ***Don't mess with Ninja Jason. He is a karate black belt – and I'm not joking.***

➤ I can also confirm that wind and weather permitting, it is within the bounds of possibility, and could be on the cards that people who have paid for the software will receive it in two weeks.

Unless you phone the order line. They, it appears, use different Rune stones and guarantee delivery next week, and have been doing so every week for 2 months.
Brian Smith, Plymouth, Devon

● ***Sounds like the joke they tell in the Soviet Union about the chap buying a car. 'I'm glad to say your Lada will be delivered on the afternoon of June 17th, 1995', says the salesman. 'Can you make it the morning?' says the bloke, 'because the plumber's coming in the afternoon'.***

HE WHO NEWCASTLE BROWN KNOWS

For my sins I have to commute from Eastbourne to London. A year ago I made the journey more tolerable by buying a fat and glossy computer magazine, and drinking perhaps three cans of Newcastle Brown beer.

Then the penny dropped with a resounding clang. I was spending a fortune. Also, I neither needed nor could afford the fancy merchandise features; and by the time I'd drunk half the beer I was half asleep anyway.

These days I never sleep whilst in transit. It is either your colourful, informative and reasonably priced magazine which keeps me awake – or perhaps it's the British Rail Coffee!
Mike Coleman, Wimbledon Park, London

● ***Or the frightening thought that the coffee and your long-distance season ticket has gone up by 20% despite the fact that BR is the only commercial passenger rail service to make a profit in the world (whoa, bit of political satire there).***

BACK PROBLEM

I have had great difficulty in obtaining copies of your magazine Express in our area. I have now placed an order with a local newsagents but unfortunately I have missed a couple of copies.

The newsagent has told me that he cannot obtain these back copies for me. This is particularly disappointing to me as I am in the process of collecting your series on the 'A to Z of computing'. Is it possible for me to obtain these copies direct from you or copies of the 'A to Z' that I have missed? The date of the copies I have missed are the 29th April issue and the 13th May issue.

• He should read Express – it's much more interesting, says Mike Coleman

From little acorns, great prices

MYSTERY PRIZE WINNER

With the recent launch of the Archimedes 3000, many were expecting great things. As you pointed out, the marketing strategies of Acorn, make the mind boggle. Not only does the machine cost well over £700, admittedly for incredible hardware, but they have also left extensive Input/Output facilities (a TV output for example) off this 'cut down' version which Jack Schofield of *The Guardian* pointed out in his recent article.

Though Acorn have recently published reports of pre-tax profits, do they seriously believe that this 'entry-level' machine will attract the followers of the BBC Model B series? I have used the Archimedes at college, with the new RISC OS, and it is a stunning piece of equipment but the market they seem to be aiming for simply cannot afford £700+ with little or no 'entertainment' software support. Even those who may wish to use it for more serious applications will aim for a higher spec 410 than one which has only one expansion port.

Maybe Acorn might like to drop recouping development costs in the short term for extended security in the future. Their position in the USM (Unlisted Stock Market) has long been very dubious. Possibly the dropping of BBC TV backing might be attractive, especially since Acorn have such a strong standing in the educational sector and so really do not need the publicity that was once essential to their existence which would reduce production unit costs by not having to pay the hefty royalty that is currently paid to the Beeb.

Whichever way they do go, it is sad to see a company with an excellent reputation for technical achievement and solid user base support lessen their chances of 'making it big' again, in the once more burgeoning personal micro sector, by making an unwise decision for the future.
Yan Fa Li, Milton Keynes, Bucks

● ***I'm sure few people would disagree with you. What effect for Acorn the dropping of TV backing would have I don't know; all I do know is that the BBC seem very keen to push BBC machines (including the 'BBC A3000') – see* The Software Show, Blue Peter, *this week's competition in the* Radio Times *etc. etc. (and last week's* Express *back page).***

Anyway, let us know your machine, and as the winner of this week's mystery prize we'll send you a piece of software.

• Acorn's A3000: another lost opportunity

I find the articles you produce very informative and have suggested that our Resources Centre order a copy for our Library, so that students can keep up to date with the advances in microcomputing.
P D Stadden (Lecturer in Mathematics and Computing), Hengoed, Mid Glam

● ***Back copies are available from The Old Barn, Somerton, Somerset, TA11 7PY for 75p each (many issues are sold out but 20 onwards should be OK).***

We might just reprint the complete collected A to Z, with updates, sometime in autumn, though nothing is finalised yet.

PD AIN'T PIRACY

I would like to reply to Alex's letter titled 'Protect and Survive' (Express 29).

I share his views entirely that piracy should be stamped out, but I strongly object to his comments on classifieds. Myself and some colleagues run an Atari user and PD club in conjunction with a commercial software company. In order to build up a respectable library of titles we have found it necessary to answer adverts in the classifieds. In these dealings we have found very few pirates trying to sell their wares behind the cover of PD software. We also advertise in these classifieds ourselves as we are a small company with a limited budget and we feel we are in no way encouraging piracy of any sort in doing so.

Alex should try answering some of the adverts before he starts making accusations that he cannot prove. I do understand that there are a few pirates using these methods of distribution but I disagree with his generalisation that most users of this service are pirates.
Ian Slater, Paradise Computers, Brighton, East Sussex

STORY

I want to tell you a story. I own an Amiga. On the 19th of November 1988 I took a visit to the Commodore show in Hammersmith. Ther I saw a stall labelled "The Computer Trading Company". I gave them a passing glance and went to the stall opposite, where they were selling ➤

EA's *Test Drive* and *Battlechess* for fifteen pounds. When I enquired about the price the man who owned the stand said, "I have to tell you, the stand opposite is selling these games for a tenner although God knows how he gets them that cheap".

I went across to the stall in question, "The Computer Trading Company" where I purchased a copy of *Marble Madness* for £10.

When I got the game home, it failed to work, returning Gurc Meds and a read/write error again and again. So I took it back the following day, when they said that they didn't have another copy in stock, but they could take my copy and send another game through the post.

OK. They gave me a receipt, which I still have. Three weeks and nothing. I phoned the number at the top of the receipt, and time after time it rang for about five minutes before someone picked up the receiver and put it back down again. I looked through the telephone books. No such number or company. I phoned directory enquiries. No such company listed.

Then (don't ask why) I was at the Atari show when I saw the same company again. When I politely enquired, the guy said, "uh, um er, ooh, err, umm – it shouldn't be long now." Or words to that effect. Seven months and still nothing. I didn't take it any further. But the thing is, I think the public must be warned, because the chances are that they will be operating at this next Commodore show. And it is not fair.

It might also be worth noting that the company's name was not listed in the November Show Guide. The company operate (supposedly) from Westow Hill, Crystal Palace, SE19.

Russell S Fox, Southfields, London

GRIPE WATER

A minor gripe coming up. The Amiga Blit column in issue 28 published a 'cheat' for *Hybris*. This 'cheat' is in the instructions that come with the game, thanks for nothing!

Minor gripe number 2 on issue 32. I've noticed a few spelling mistakes in your mag lately and while this shows that we are only human I would like to know if you use a spelling checker in your word processors and if so, tell us which one it is so we can avoid it. Tee hee!

PS How about some competitions?

Neil Barnes, Birmingham, West Midlands

● ***Spell chequers ah useful butt ewe sum thymes fined nonsense past as 'rite'.***

Competitions? No sooner said! Look out for our first comp of 1989 next week...

POINT TO POINT

I have several points to make:

1 I think *Express* is a load of rubbish; cheap, bad quality printing, boring, out-of-date reviews and articles and a total rip-off.

2 I was amazed to see in issue 29 you actually acknowledge that *Elite* was originally a BBC game, released by Acornsoft at the end of 1984. In your previous issue (that's issue 28, for all you C64 owners out there) in your *A-Z* you mention *Elite*, but make no mention of Acornsoft or even the Beeb (incidentally, one of my computing friends, a CPC and ST owner who has never owned a Beeb thinks the Beeb version is still the best – not having seen any other versions I cannot really comment.)

3 What does a robotic politician say? I be MP, see! (No boring jokes about that being most of them, etc.)

4 Although I agree with your choice of the best wordprocessor for the Beeb (*Express* 27), it is in fact spelt *Interword* – no Americanisms here, please.

5 I only read one and two-star reviews in your magazine – a sort of sadistic mind I suppose. You never review any Beeb games anyway (subtle hint) so it doesn't really bother me.

6 Piracy would not be stopped by lowering the price of games. Suppose you had the choice between paying £4.95 for the latest mega-game on your Stamiga, or copying it from your friend. I know which anyone who presently indulges in keeping backups for your best mate (a euphemism) would choose. No hypocritical letters on this subject next week, please.

7 Any promise which everyone knows has no chance of being fulfilled has recently been dubbed a Tynesoft promise at my school.

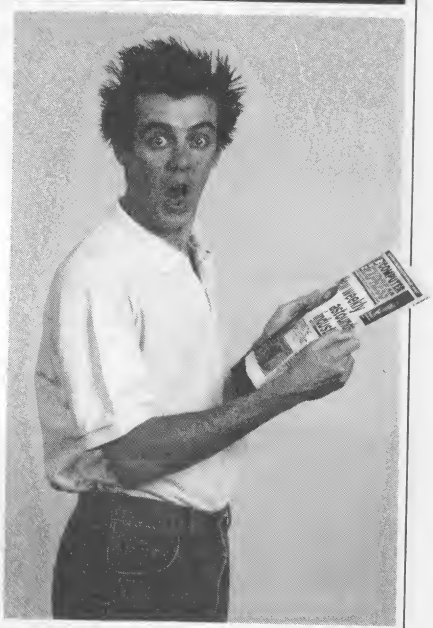
8 And finally (massed sigh of relief)...

9 I didn't honestly mean what I said in point 1 – in fact I meant totally the opposite (in case you hadn't already guessed.)

Jeremy Benson, Bedford, Bucks

Don't forget!

Express wants to hear from you about the practice of reviewing games before they're finished. Write to What Price Exclusive? at the usual address. And on that note, it's emerged that some mags did review the completed version of US Gold's *Forgotten Worlds*. Slapped wrists to the character here who said that no one other than *Express* had...



• Express is a total rip-off and a load of rubbish, says Jeremy Benson

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COMPUTING: DOESN'T IT MAKE YOU SICK...

Eye strain, back pain, migraine and general headaches, skin problems, stress – and even miscarriages and birth deformities – are a few of the complaints linked with using computers. Are you damaging your health at home or at work? Basil Pigg investigates...

Computers damage your health – of that there can really be no doubt. Even a couple of hours playing your favourite game or hacking away at your word processor will leave you rubbing your eyes and feeling a bit listless afterwards.

The odd hour or two here and there though isn't going to cause any serious problems; after all, the effects are only the same as watching the TV for the same period or spending the same time in a smokey pub.

But when the amount of time spent in front of a monitor – visual display unit, or VDU – gets up to four hours a day or so, you could well start to notice a few problems. Eye strain, headaches, stress, skin diseases and miscarriages have been linked with VDUs. And with more and more jobs requiring you to work with a VDU, you could find that a day in the factory or the office – perhaps followed by an evening session on your micro at home – makes you sick. Literally.

Not all are the sort of things that will kill you, but they can make life a lot more uncomfortable. At least being forewarned is being forearmed.

The hazards fall into five categories: eye problems, muscle injuries, skin complaints, stress, and pregnancy hazards.

The eyes have it

The most common effects of a VDU are on the eyes. Burning or sore eyes, blurred or double vision, even changes in colour perception are quite common (anyone who spends their life looking at the green screen of a PCW or CPC will sympathise!).

Eye strain is caused by muscular fatigue – the eyes spend all the time focusing at the same thing. Glare on the screen from a window or light makes the screen more strenuous to the eyes. Flickering doesn't help either.

Amber screens seem easier on the eye than the green favoured by many manufacturers. Amber is the standard colour of computer monitors in France.

Contact lens wearers often suffer from discomfort because of a lack of humidity; VDUs dry out the atmosphere around them pretty efficiently. Central heating and bad ventilation make things worse – the simple remedy may be to keep a window open; the drastic remedy is overhauling the heating system.

There are murmurings, none of them substantiated as yet, that the radiation from VDUs may cause cataracts – this may be something we hear about in the future, but let's hope not.

Most opticians say that using a VDU shouldn't affect the strength of your eyes that much – any changes in, for example, the prescription of your glasses, is more likely to be a sign of natural variance in the shape of your eyes (probably due to age!) than anything else. That said, anecdotal evidence seems to suggest that a lot of people have had to change their glasses – or even start wearing them – after starting heavy work on VDUs. A recent survey by the US National Institute of Occupational Safety found an inordinately high rate of problems in focusing among those in their 20s and 30s who spent more than six hours a day in front of a VDU.

The simple answer is to keep seeing your ▶

The legal angle

There is no legislation in the UK currently involving computer VDUs in the workplace, only the guidelines laid down by the Health and Safety Executive. The VDU Worker's Rights Campaign (address overleaf) would like these made law:
a) VDU use is no more than 4 hours a day and no more than 50% of the working day, and that 15 minute breaks per hour be compulsory
b) Design requirements for office furniture laid down
c) Compulsory electronic shielding of VDUs against electromagnetic emissions
d) The right of VDU workers top transfer to other work when planning to start a family

These proposals are backed by a hundred MPs, but currently look unlikely to be considered further, as none of those are Conservative. Similar legislation to a) and b) has already been passed in some parts of the US. The European Commission is pushing to make member countries of the EEC pass laws on VDU use by 1991, though this doesn't mention electronic shielding.

optician regularly (if you can afford the new fees) and let them know that you work with VDUs. Bifocal wearers may need their glasses adjusting for the usual eye-to-screen distance.

In your study, office or bedroom, you should follow these guidelines for the sake of your eyes:

- VDU work should be limited to a maximum of four hours a day (to a maximum of 50% of the working day in an office) with a break of 15 minutes every hour
- VDU screens should be positioned so they don't reflect any glare – i.e. at right angles to windows
- Anti-glare screens should be fitted – there will be ads in your machine-specific magazines
- Overhead lighting should be bulbs rather than fluorescent tubes – they glare too much
- Adjust the screen brightness and contrast to suit the operator

Pickled muscles

Remember Writer's Cramp? There are dozens of computer-related muscular complaints now. Most of them come from the posture you're expected to hold while at the computer: awkward positioning of keyboard, monitor and chair can cause backache, neck pains, shoulder problems and so on.

Beating them is largely common sense: you make sure you're comfortable, that you can see the screen without straining or tilting your head, that your feet touch the floor or footrest, that the chair gives good back support and so on. If you're even slightly uncomfortable when you first sit down, it'll turn into strains and aches after an hour or two. And regular breaks from solid keyboard use are essential – 15 minutes per hour at least. It's constant typing that causes problems; data entry operators such as typist or sub-editors have been shown to be more at risk than programmers or writers.

The keyboard should be at a level so that the hands are horizontal when they type; there are special ergonomically designed keyboards available now whose rather odd knobbly shape is claimed to be easier on the hand (see *News*, *Express* 29).

In the news recently has been the more insidious complaint of RSI – repetitive strain injury. It's caused by continuous or repetitive hand or arm actions and can have extremely painful effects on the joints and tendons. Good old manual typists suffered less from it because

DAILY TELEGRAPH

• RSI isn't just a matter of stiff wrists. It can be a crippling disability and could lose you your job

• Pregnant women may be at risk from miscarriages if they work in front of VDUs. The Amstrad PCW is one of the highest emitters of radiation, which some think may be a factor

the carriage return broke up the sequence of movements; with electric typewriters and now word-wrapping computer keyboards, you can input text for hours and hours without your hands leaving the keyboard.

Tenosynovitis, the most common RSI complaint suffered by computer operators, cripples the wrist tendons and is a recognised industrial disease (as is Writer's Cramp) whose sufferers may be eligible for some social security benefits.

It sounds alarmist to talk about going to the doctor with a slight ache in the wrist because you've been overdoing the typing – but permanent disability can result.

Slip me some skin

At first it seems odd that skin complaints should be apparently caused by VDUs. But in a survey in Sweden, VDU workers reported conditions varying from exotica such as rosacea, telangiectases and seborrhoeic dermatitis to the more prosaic acne. Astonishingly, only 6% reported normal skin.

Not all of this is due directly to the VDU screen. The most likely explanation seems to be a combination of inadequate ventilation, an over-dry atmosphere and excessive static electricity.

Many air-conditioning systems were not designed to cope with the extra heat generated by computers, resulting in a dry atmosphere. But a more insidious effect of the VDU screen is that it spits out positive ions – electrostatically charged particles which charge up the dust in the atmosphere and cause dry skin and irritated eyes. Anti-static cleaning fluid and screen wipes, and even negative ionisers to combat this are available from various office suppliers, but again the remedy seems one of common sense: keep your office or bedroom well ventilated – open a window. And don't spend too much time in front of the monitor – remember that 15 minutes break per hour.

Point to stress

Stress is one of those things that isn't actually caused by working at a computer, just aggravated by it. The fact that we all rely more and more on computers to do some parts of our job for us mean extra nail-biting when something goes wrong with them, or you can't figure out how to make the damn things do what you want.

The stresses of your job (and your everyday life) are probably quite enough to cope with, without having your data disk corrupted or someone accidentally pulling the plug on your day's work. And working in uncomfortable conditions doesn't help either.

Those most likely to suffer from stress are again typists and sub-editors – those who work to deadlines more – rather than programmers, writers or journalists.

Again, the remedies are largely common sense: stress is minimised by having comfortable conditions, a job that doesn't rely too much on the computer, adequate training and a pleasant social atmosphere.

It's something less likely to affect the home user as it's so much easier to switch off, literally or metaphorically, and listen to some music or go for a walk or watch telly or whatever. In fact, you probably play computer games as a relaxation and way of winding down from stress!

Reproduction problems

It seems certain now that there is some link between using VDUs and miscarriages. But the hows, whys and how muches of this, possibly the most worrying of all computer-related disorders, are still being argued over. The 'normal' rate of miscarriages is not known for certain and has been reported as being between 10% and 25%. 'Clusters' of miscarriages – i.e. a lot of women in the same area or job experiencing above-average rates of miscarriage – are a standard statistical phenomenon. But when the clusters start appearing over and over again in offices with VDUs, eyebrows are raised.

Since 1979, when four out of seven pregnancies among VDU operators at the Toronto Star ended in deformities, several studies have been done on pregnant women who use computers at work. The results are open to question but raise serious points.

The most recent, one which was reported widely in the press, was done by a health care organisation in the States, Kaiser Permanente. It ▶

The Strange Case of the FT

The *Financial Times* hit the news recently because of an 'outbreak' of RSI, principally among their sub-editors.

They went over to direct input – the keying-in of all text directly into a computer which makes up the finished pages – about two years ago. Last autumn a few employees noticed stiffness and pins and needles in their wrists and hands; the pains got worse and severe cases of RSI were diagnosed. Fifteen cannot now use keyboards at all.

'Some people couldn't grip things properly – couldn't drive or pick up their children,' one told us. 'Once you've got RSI, it's very, very hard to get rid of. Rest is the only answer – and if your livelihood depends on using a keyboard, then you've got problems.'

Of around 300 who use keyboards, around 80 have reported RSI problems, 20 seriously. Why did it happen at the FT in particular, and not in the same scale at any of the other dailies? It seems the FT was guilty of nothing except bad luck – when they changed to direct input RSI was not understood as well as it is now.

'Probably one reason was that the FT is very wordy – sub-editors have a lot of keying-in to do, to tight deadlines,' one sub told us. 'The existing chairs and footrests didn't suit the direct input system when we changed, and most important, we didn't take any breaks.'

Now the FT has introduced regular breaks and moved to a new building with new office furniture. 'It's a bit early to tell, but things certainly seem to have got better,' he said.

A further factor could be the computer system used by the FT. Simpler ones involving fewer keystrokes like those used at *The Independent* seem to have caused few problems.

Tne Institute of Occupational Research in Edinburgh is doing a study on the FT case to find the causes in more detail. Similar 'outbreaks' have been reported from other newspapers, notably the Los Angeles Times and the Fairfax Organisation in Australia which publishes five dailies.

A woman in Nottingham was recently awarded £45,000

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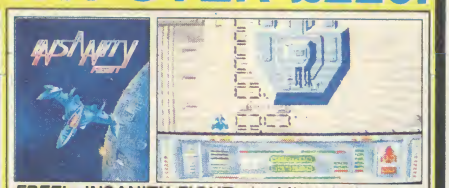

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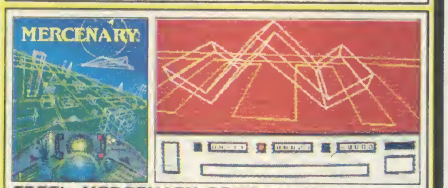

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If so, which one do you own?

found that women using VDUs for more than 20 hours a week in the first three months of pregnancy were twice as likely as non-working women to suffer miscarriages – results which confirmed the findings of many earlier surveys in other countries.

The radiation that comes from the VDUs has been cited as a possible cause. Although the Health and Safety Executive's leaflet on VDUs at work say that the radiation from a human body is actually more than that from a VDU, it is well known that the radiation from monitors varies from the negligible to the noticeable.

The Amstrad PCW comes off as one of the worst, though it must be said that emissions do not break any guidelines or laws, mainly because there are no laws or guidelines governing such things at the moment.

The Kaiser study authors noted in the American journal *Industrial Medicine* that many explanations were possible apart from electromagnetic fields. Stress factors, or simple over-reporting of VDU use in those who had suffered miscarriages, could be responsible.

Bad posture has been suggested as a factor, but this would not explain why women in non-computer sedentary jobs do not seem to experience a similar rate of miscarriages.

The Health and Safety Executive's leaflet is reassuring and insists there is no proven link between VDUs and miscarriages. Pregnant women can continue to use computers, they say.

However, studies on animals in Sweden, Canada and the US have reported many times the expected level of abnormalities or stillbirths in those exposed to VDU type radiation.

A VDU produces everything from low-frequency, non-ionizing radiation (such as that emitted by high voltage lines, radio, microwave ovens etc.) to high-frequency, ionizing radiation (like that of X Rays, TVs etc.) Everything, in fact, except gamma rays, which only appear in situations like nuclear fall-out.

The controversy centres around how much radiation is harmful. Scares in the sixties that radiation from a TV set might cause disease have largely been dismissed. Though the level from a TV set is taken as 'standard', few people sit 18 inches from a TV set for eight hours every day.

Even men may not be immune from the effects of radiation; Swedish research suggests that non-ionizing radiation may be linked with fertility problems and disorders of the reproductive organs.

The evidence is mounting generally that VDUs certainly don't do anyone, particularly pregnant women any good. It took years for smoking or alcohol to be recognised as being inadvisable for pregnant women; perhaps the time is ripe for VDU work to be thought of in the same way.

Even if the chances of damaging a baby through VDU use turn out to be as little as one in a hundred, it's a risk most mothers would not want to take.

Conclusions

Anyone who sits at a computer screen for more than, say, four hours a day regularly should take a careful look at their setup. If you work in front of a VDU it's in your own interest. Armed with a list of symptoms of the 'typical computer' diseases you can hopefully detect the problems with your system before things get serious.

But for most of us, just using the PC at work a few hours a day and the micro at home for a bit of game-playing or word processing, there's no need for drastic measures, just a bit of common sense. Regular breaks from the screen and a comfortable chair and desk will be all that's necessary. ●

Further information...

There are several publications available giving advice and guidelines on the healthy use of computers. Probably the best of them is the information pack produced by the VDU Workers' Rights Campaign. It details the various ill-effects of computer overuse, gives sensible guidelines for your workplace and even includes a list of MPs to lobby. It costs £2 and is available from City Centre, 32 Featherstone St, London EC1Y 8QX. Tel. 01-608 1338. They also do a booklet 'Stress and VDU Work' for £1.50.

The Health and Safety Executive also produce a leaflet 'Working with VDUs' (from area offices of the HSE or Baynards House, 1 Chepstow Place, London W2 4TF). It is much more reassuring reading than the info pack above and says there is no danger to pregnant women or to your eyesight. Get both and see which you think stacks up better!

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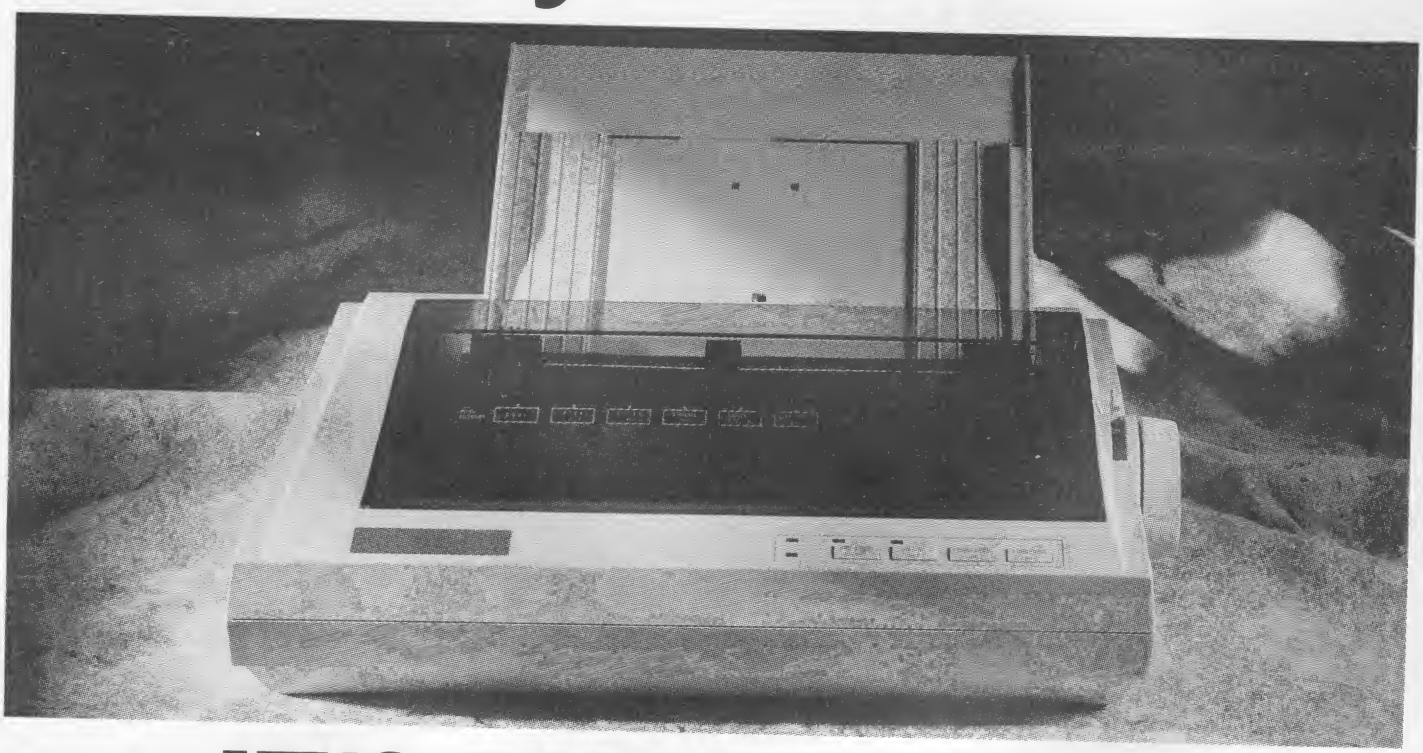

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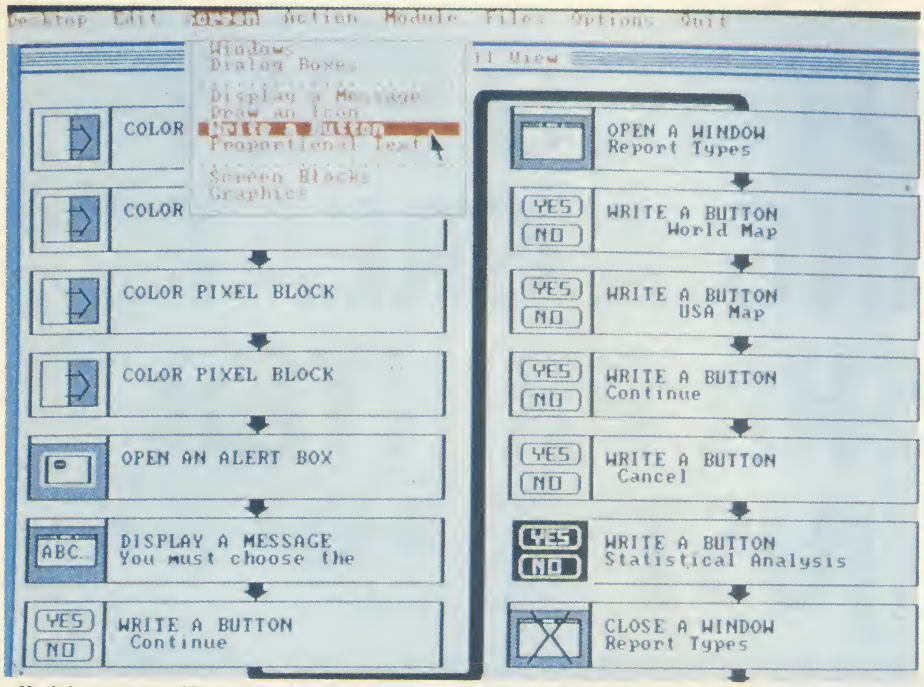
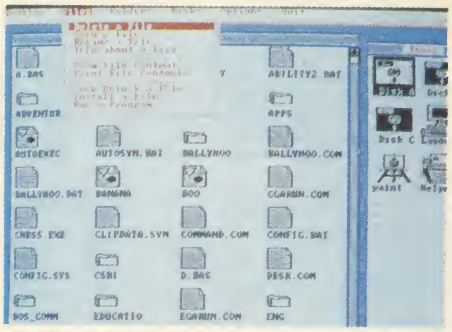
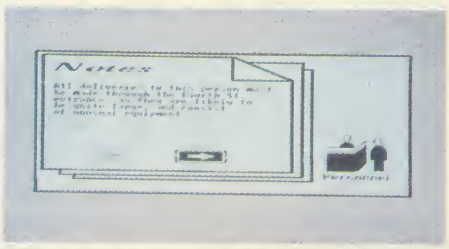


• Matrix Layout comes with a graphical interface which is similar to GEM on the Atari ST and the Mac's desktop. Pull-down menus enable you to access all of the features without having to remember difficult and obscure commands. To transform your amazing ideas into working programs, you must first design a flowchart containg all the things you'd like the program to perform. The Matrix flowchart doesn't use traditional flowcharting symbols, but a series of boxes each containg a piece of information which can be interpreted and coded directly by the program. Once you've designed the flowchart, Matrix Layout will generate code in either a ready-to-run module, or if you prefer, a text file on disk containing source in a range of popular languages.



• All normal DOS commands can be performed from the Matrix Layout desktop. By selecting and highlighting icons, files and programs can be deleted, copied and moved, and directories can be created and deleted.



• There's no paper manual with Matrix Layout. Instead, the package has a full electronic reference available at any time within the program. It will provide you with a relevant page of information for whichever part of the application you may be experiencing difficulty with. And you can include a similar manual of on-line help in your own programs.

Jumping through OOPs

A program that writes programs for you? Oops! Sounds like a mistake – but quite tru e. Jerry Glenwright investigates the latest in programming systems that could make learning computer languages a thing of the past...

Matrix Layout ● PC £99.00 ● Matrix Software Technology (Tel. 0752 796363 ● Also available for the PS/2 range

OOPs is nothing to do with colliding with some inanimate object or breaking someone else's semi-precious porcelain figurine. The word has been adopted by the computer industry to describe the latest high-tech software packages which allow users to cobble together programs merely by drawing flowcharts – the OOPs application does the rest by writing the program for you!

Several software houses are about to launch their own OOPs applications on to the market (notably Apple's *HyperCard* and Borland, responsible for a large range of quality language products) but one of the first is Matrix Software Technology of Plymouth with its *Matrix Layout*, touted as being the first true computer-aided software engineering program available to the person in the street.

Features

What is OOPs? The word is an acronym for Object Orientated Programming and is a method of using existing program modules along with flowcharts provided by the user to write full-featured programs automatically.

Matrix Layout will write error-free programs for you in a range of languages such as Turbo Pascal, Turbo C, Microsoft C and Quick BASIC. The program provides an OOPs database which holds text and picture information. By combining these cards, you are able to instruct Layout on the type of data you wish to manipulate. You can link cards over several fields and incorporate them in your program flowcharts. The cards themselves are language independent so you can choose you own favourite high level language for Layout to work with.

To generate programs is simply a matter of designing a flowchart detailing what it is you'd like the program to do, linking cards that you wish to use form the card file and from there, Layout will generate programs which are error free and ready to run, or if you prefer, will place text files on to a disk which contain source code written in one of the high-level languages mentioned above.

You can provide your programs with on-line help windows using *HelpMaker* – one of Layout's modules – which are sensitive to the position of the user in the application, i.e. the correct page of help text is placed on the screen automatically wherever the user is in the program.

• Matrix Layout is one of the first OOPs packages to be made available at a reasonable cost to the person-in-the-street. But other notable computer language software houses are all promising their own versions for the IBM-PC and compatibles and the high-end home computers such as the Atari ST and Amiga.

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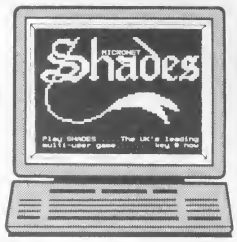

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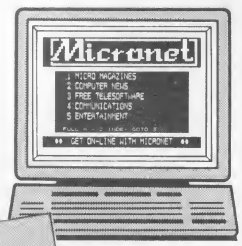

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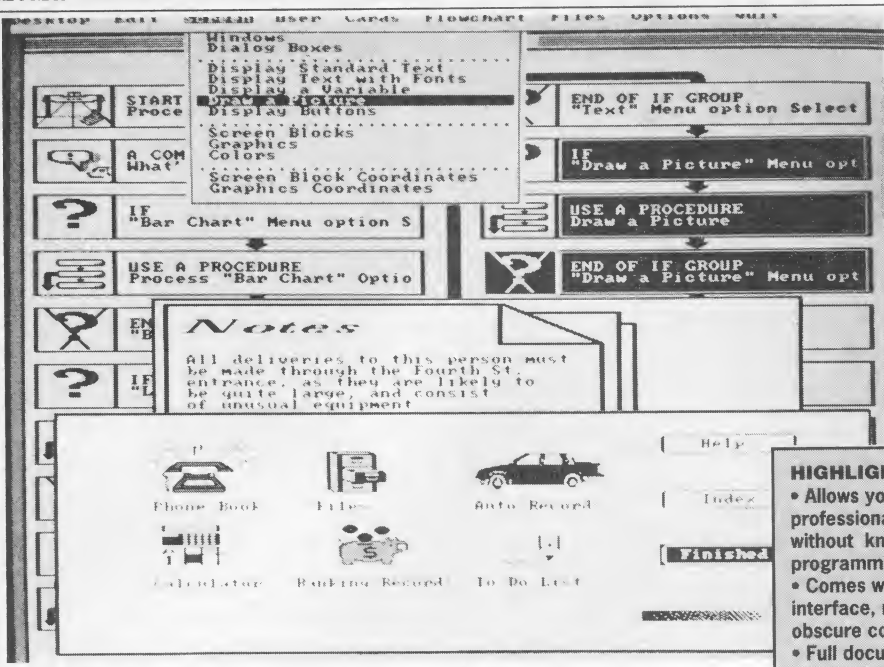

User interface

If you've ever watched with envy as ST and Macintosh owners flip around icons, folders and files on their monitors quickly and easily whilst you had to remember arcane and obscure command sequences to do all but the most simple of tasks on your PC... then *Layout* has the answer for you. It comes with a GEM-like interface which allows you to sort and manipulate files and directories just by selecting and highlighting icons on-screen. No need to remember commands or leaf through weighty texts. All DOS operations can be performed from this 'desktop'.

Documentation

Layout is provided without any documentation – paper documentation, that is – for the complete reference manual is held in electronic form and is available for you at the touch of a button, literally. The manual holds not only text, but graphics too, illustrating many of the more difficult to understand features of the program. The manual itself was written using *HelpMaker* and nicely demonstrates what can be done with the help feature.

• Matrix Layout has a built -in card file which allows you to store and index text and picture information. You can link cards together over several fields and then merge them into programs created by the application. You can also use the card file with the Helpmate feature. By including a series of help pages which can be accessed from within your program, the card file information can be made available to the user. Pictures can be displayed on-screen and the general effect looks very professional.

HIGHLIGHTS

- **Allows you even you to create professional-looking programs without knowledge of a programming language**
- **Comes with a GEM-like user interface, meaning there's no obscure commands to remember**
- **Full documentation available on-line at all times**

DRAWBACKS

- **You need ideas!**
- **You need to have at least some knowledge of the logical steps a program takes in order to write the flowchart**
- **You need to have a PC or compatible – OOPs systems are simply not available for 8-bit machines**

Verdict

OOPs would seem to be the way forward for the ordinary computer user with program ideas but lacking the programming skills necessary to implement those ideas. *Matrix Layout* is a fully-featured OOPs package which provides you with everything you need to turn those ideas into reality.

But remember, you do need ideas. Programs *will* write themselves, but you need to offer 'inspiration' in the form of flowcharts before you'll have anything usable. If you have those ideas, or you're just interested in OOPs and *Layout*, then Matrix can provide you with a demonstration video for just £2.95 which can be deducted from the purchase price if you decide to buy the product.

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Way back in November last year, when we launched* New Computer Express, *we hoped it would establish itself as the best, brightest and biggest-selling computer weekly around. Well, it achieved that in the first week, and has done so ever since.

But are we going to sit back, rest on our laurels and stick our heads in the sand? No. We want to make Express even better – and this is where YOU can help.

The more we know about our readers, the more we can find the news and features that you want to read. Fill in the questionnaire below and tell us what you think of us: the good, the bad and the corrupted.

If you're on the run from the Inland Revenue, about to do a moonlight flit or just a shy retiring type, you're welcome to leave out your name and address.

But you could be the lucky winner of £100 of mystery software for your machine, free, gratis and for nothing – except a couple of minutes of your time. We'll be sending just that to a questionnaire drawn at random from the editorial baseball cap on July 1st (though we'll welcome questionnaires after that date).

And to two not quite so lucky others, we'll bung £30 of software in the post too. Not bad eh?

Send your completed questionnaires to:

Questionnaire, *New Computer Express*,
4 Queen Street, Bath, Avon, BA1 1EJ

Name.....

Address.....

.....

.....

Occupation.....

1. How old are you?
❑ Under 16 ❑ 17-24 ❑ 25-34 ❑ 35-44 ❑ 45-54 ❑ Over 54

2. Which computer(s) do you own?
❑ PC (please specify make).....
❑ Amiga ❑ Atari ST ❑ PCW
❑ CPC ❑ Spectrum ❑ CBM64/128
❑ Atari 8-bit ❑ BBC ❑ MSX ❑ QL
❑ Archimedes ❑ Z88
❑ Sega ❑ Nintendo
Others.....

3. If you intend buying a computer (or console) in the next 12 months, which machines are you considering?

.....

.....

.....

.....

.....

4. Do you use your computer for
❑ Leisure and entertainment only
❑ Serious usage only
❑ Both leisure and serious

5. Approximately how many hours a week do you spend using your machine?
❑ Less than 2 hours ❑ 2-5 hours ❑ 5-10 hours ❑ 10-15 hours ❑ 15-20 hours ❑ 20-25 hours ❑ 25-30 hours ❑ Over 30 hours

6. Do you use a computer at work?
❑ Never
❑ Sometimes
❑ A lot of the time

7. In the last two months how much have you spent on:
Computer hardware .....
Entertainment Software .....
Serious Software.....

8. What proportion of this expenditure has been through mail order?
❑ None ❑ 1%-25% ❑ 25%-50%
❑ 50-75% ❑ 75-99% ❑ All

9. In the last two months which three pieces of software have been in most common use on your machine? (in descending order)

.....

.....

.....

10. How often have you used the Express voucher scheme?
❑ Never ❑ Once ❑ 2-3 times
❑ 4-6 times ❑ More than 6 times

11. How regularly do you buy *Express*?
❑ Only very occasionally ❑ About once a month ❑ Twice a month ❑ Three times a month ❑ Every week

12. When did you first come across the magazine? (It was launched last November)
❑ At launch ❑ Around Christmas
❑ Early this year ❑ Only recently

13. How did you first get to hear about *Express*?
❑ Advert in a newspaper ❑ Advert in a magazine ❑ Word of mouth ❑ Saw it on the news-stand ❑ Other

14. What are your main reasons for buying *Express*? – please number up to five in order of importance. For example if your main reasons for buying *Express* are the adverts, the news and the letters in that order write *1* next to Adverts, *2* next to News and *3* next to Letters.
❑ The cover feature
❑ News
❑ Hardware Reviews
❑ Games Reviews
❑ Applications Reviews
❑ Express Mail (letters)
❑ Tech Tips
❑ The magazine's humour
❑ The column(s) for your machine(s)
❑ Adverts (eg. to hunt for bargains)
❑ Small ads
❑ Job adverts
❑ Express Vouchers
❑ Other .....

15. What do you dislike about *Express* – and how can the magazine be improved?

Thanks for your trouble – all your comments will be read carefully and we'll do our best to keep everybody happy!

Part 8 of the definitive Express *guide to computing*

J K

JAILBREAK (G): Konami coin-op conversion, memorable for being awful. After the game nose-dived, Konami fielded conversions back to Ocean.

JAZZ (INT): Developed by Lotus for the Apple Macintosh, this integrated software application includes modules for word processing, communications, spreadsheet calculations and graphics. Popular amongst Mac business users in the States, the package remains obscure in the UK.

JETPACK (G): Classic Spectrum game from Ultimate which was a cross between platform and shoot-'em-up.

JET-SET WILLY (G): Matthew Smith's follow up to *Manic Miner*. 'Willy' features in the all-time top 10 of bug ridden games.

JOBS, STEVE (P): Extravagant, flamboyant and visionary co-founder of Apple, and self-styled 'inventor of the personal computer'. He formed Apple in 1975 with Steve Wozniak, with the aim of making computers personal rather than the large-scale IBM mainframe machines.

They succeeded beyond their wildest expectations. He was a millionaire at 23 and valued at $200 million at 25. His excesses (such as buying all the advertising space in *Time* when the Mac was launched, and putting a full-page ad in the *Wall Street Journal* declaring that he and Wozniak invented the personal computer) caused friction and he resigned from Apple in 1985. Now 33, he is working on a more ambitious project, the *Next* computer.

See ***Apple, Next***.

• Steve Jobs: Millionaire co-founder of Apple

JOYSTICK (T): A movable stick which has, hidden inside a case at its base, a series of switches. Moving the stick in any of the compass directions causes the switches to be tripped, thereby relating directional information to the computer. In this way, the computer's cursor or games characters can be moved around on-screen. The joystick enhances gameplay by providing improved response speeds over the keyboard, but also has its serious uses when coupled with applications performing computer aided design.

JUSTIFICATION (T): When using a word processor such as *WordStar*, *Protext* or *Locoscript*, it is possible to have all the text in a file have straight margins on both sides. Each edge is of exactly the same length and the right hand edge forms a smooth line flush with the width of the column. This feature can be achieved using the crude method of inserting extra spaces between words to pad out the lines. An alternative is to use 'microspacing'. Using this method, fractions of the standard one character size are used to pad the line between words *and characters*. This method of padding lines with fractional spaces is not as obvious as inserting whole spaces.

JUPITER CANTAB (CO.): Formed in the early '80s, the company had one stab at the burgeoning micro market by releasing a home computer with the distinction of having Forth as its built-in language. See ***Jupiter Ace***.

JUPITER ACE (C): The home micro released by Jupiter Cantab in the first half of 1984. The machine was approximately the size and shape of the ZX81 but unlike that machine, remained obscure due to its employing Forth as the built-in language. The machine is today unheard of outside alternative micro shows and train-spotter gatherings.

JUGGLER (G): Incredible Amiga demo featuring a little robot character juggling three reflective spheres, displayed in a thousand computer shop windows. The demo helped to sell the Sculpt 3-D language used to write the demo.

KATAKIS (G): After ruffling Activision's feathers with this *R-Type* clone, US Gold was forced into suspending publishing of the game at the eleventh hour. However, it re-surfaced some months later under the name *Denaris*.

• Katakis: Ill-fated R-Type clone pulled at the last minute following legal wrangles

KAYPRO (CO.): A range of machines designed and marketed by Non-linear Systems of Solana Beach, California. Kaypro computers were very popular at the end of the 70's. They were usually 'luggable', had two 5.25 inch disk drives, a 9 inch green screen monitor, fold-out full-size keyboard and used the CP/M operating system. When CP/M went out of fashion, so did the Kaypro.

KERNEL (OS): The very 'lowest' part of a computer's operating system. If you imagine an onion to be the operating system of a computer, then the outermost skin would represent the part of the OS that the user sees and interacts with. The inner-most part of the onion would represent the kernel, responsible for maintaining the hardware and passing converted user instructions to the processor.

KEYPAD (T): Usually positioned to the right of the average keyboard, the keypad is the cluster of numeric keys set out in the style of calculator. The keypad makes entering large amounts of figures easy by placing the numbers close together and separate from the other keys.

• Keypads: an extra set of numeric keys arranged calculator-style

KINGS OF CHICAGO (G): Another in Cinemaware's series of computerised movie epics. The game is set in the Chicago of the 30s and is notable in that it requires 1Mb of RAM and 2 disk drives to be used on the Amiga! (Out soon on the ST).

KONIX (CO.) Welsh joystick manufacturer which recently hit the headlines with a revolutionary dedicated games console; the machine has – unfortunately – yet to materialise.

• Konix's new dedicated games console – yet to reach the shops

KORONIS RIFT (G): Second in a series of state of the art, fractal based games from LucasSoft. See also ***Rescue on Fractalus***.

KRYSTAL (G): Arcade adventure which was over-hyped, under-featured and approximately one year too late.

KUMA (CO.): Software house responsible for a wealth of serious software mainly aimed at the Atari ST and all prefixed with the letter 'K' i.e. K-Roget and K-Spread.

Key: C - computer Co - company DB - database DTP - desktop publishing G - game GG - game genre Gr - graphics Int - integrated software L - languages P - personalities SS - spreadsheets T - tech spec WP - word processor

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Hard decisions

What could be better than a floppy disk? A hard one, of course! Peter Worlock explains...

A good piece of advice for owners of tape-based computers is to stay away from machines with floppy disk drives. Your illusions will be shattered; once you've experienced the joys of disk storage – much greater convenience and lightning fast loading and saving – you'll never again be happy with tapes.

If you've recently upgraded to a floppy disk-based computer, like a PC, ST or Amiga, you're no doubt smugly confirmed in your belief that floppy disks are the stuff that dreams are made of. In which case, the advice to you is to stay away from hard disks.

Hard disks are to floppies what floppies are to tapes. And even though you might find it hard to believe that there could be a similar improvement over the new-found joys of floppy disks, hard disks are it.

The advantages are clear-cut and enormous: much greater storage capacity and far faster operation. And deriving from this are other benefits which can revolutionise the way in which you use your computer.

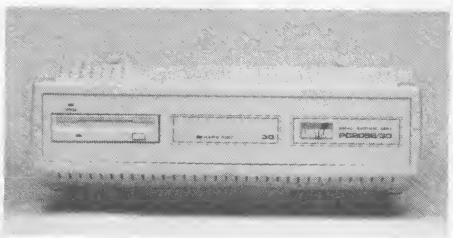
How they work

The main differences between hard disks and floppies is in construction. The floppy disk is designed to be removable whereas the hard disk is usually permanently incorporated within the drive (which is why hard disks are sometimes referred to as fixed disks).

Because the hard disk is fixed within a sealed unit, it has much finer tolerances than the floppy disk allowing it to be rotated at far greater speeds, and allowing data to be stored at higher densities. This leads directly to the two measurable improvements over floppies: data can be found more quickly, and then transferred to and from the computer at higher speeds.

Using 5.25" floppies on 8-bit computers usually provides storage capacities of between 100K and 360K although this can be stretched (as in the case of PC-compatibles) up to 1.2Mb. The newer 3.5" floppies used in the ST, Amiga, Archimedes and many of the modern PCs, provide capacities of 720K or 800K, up to 1.44Mb.

By contrast, the most common size of hard disk stores 20Mb. Capacities of 30Mb, 40Mb and 60Mb are not unusual, and very-high capacity hard disks are available storing well over 100Mb. In other words, a small hard disk will hold the equivalent of 25 "high capacity" floppies, and more than 100 times as much as the older type.



• Many PCs, such as Amstrad's PC2086/30, now incorporate hard disks as standard equipment

But despite handling so much more data, the hard disk also manages to be faster. Speeds are usually specified in two ways: access time, and (less commonly) data transfer rates. An average hard disk will have an access time of around 65 milliseconds, which means it will usually find any given piece of data in 65 thousandths of a second. Drives with an access time of less than 30ms are now commonplace. A floppy disk might be hundreds of times slower.

Data transfer rates vary enormously, but in general a hard disk can usually load programs and data far quicker than a floppy disk drive, saving many seconds every time the disk is used. A few seconds might seem trivial, but in disk-intensive applications – like database sorting or program compilation – the extra speed of the hard disk can be invaluable.

Changing your life

Improved speed and capacity are the two obvious advantages of the hard disk, but they are not the only ones – nor even the most important.

Perhaps the single greatest benefit of a hard disk is that it allows all your programs and data to reside in one place – you no longer need to swap floppy disks between different applications, or between applications software and data.

A hard disk also makes pop-up utilities more useful. Imagine a pop-up diary or address book. Most of the usefulness vanishes if you have to switch disks to allow the pop-up to have access to its data. With a hard disk the data is always instantly available.

There are spin-off benefits from the speed of hard disks too: since the hard disk is so fast, programs can treat it like ordinary RAM memory (a process known as virtual memory). This means that extra program functions, screen displays and code modules do not have to be loaded and held in memory while the program is running. Instead they can reside on the hard disk until needed, be quickly switched in, then forgotten.

This kind of process is rarely possible with floppy disks since the time delays would render it irritating at best and totally unusable at worst.

No power without responsibility

There is a downside to hard disks (although it is far outweighed by the advantages) and that is that to get the best from them they require more organisation than floppies.

The major problem is file fragmentation. When you first begin using your hard disk, all files, and all the data in a file, are stored contiguously. But as the disk fills up, and as old files get deleted, the space gets broken up into smaller fragments.

Since all operating systems make use of all available space, this means that files get broken up with chunks stored in different places on the disk. Retrieving such data takes longer.

Utility programs to unfragment the space overcome this problem, but it does add one more chore to your computer – housekeeping.

More importantly, the need to keep regular back-ups of your hard disk contents can be a real pain. The necessity should be obvious: if a floppy disk gets corrupted you'll lose a few files and a few hours' or days' work. If your hard disk goes down you'll lose hundreds of files and perhaps months of work.

The pain is also fairly obvious. To back up a floppy disk you simply make a copy. But backing up your hard disk could require anything from 20 to 100 floppies, even making selective copies and using data compression techniques.

The painless answer is to use dedicated tape units, or laser storage systems – but these solutions run to hundreds of pounds. Using a good back-up utility program can ease some of the pain – but it's a job that mustn't be ignored.

Who can have one

Owners of PC-compatibles are best placed to take advantage of hard disks. They not only have the greatest choice – literally dozens of possibilities – but also by far the best value.

A 20Mb hard disk for the PC can be had for less than £200, a very fast 40Mb drive for around £300, and a mammoth 122Mb drive for under £700.

This could be a decisive factor in governing your choice of computer – the PC starts to look much better value than computers *appearing* cheaper at first glance.

For example, although both the ST and Amiga now boast hard disks (the former having much the wider choice) prices are horrific. On the ST a plain 20Mb drive will cost you £500 and up, while a similar device for the Amiga is nearer £600. For the Amiga a 60Mb drive will cost a cool £1,200 while PC owners can get a similar job for £400!

Archimedes owners are in similar financial straits – about £600 for a 20Mb model. Even the otherwise expensive Macintosh can do better with capacities of 20Mb to 60Mb and prices from £400 to £600.

If you have any other kind of computer, you'd be best advised to think about upgrading. Although there may be kits providing hard disk storage they are likely to be too problematical to be worth bothering with: the cost will certainly be many times the price of your computer, and it's odds-on that very little if any software will work with the hard disk. ●

TECHNOBABBLE

Hard disks

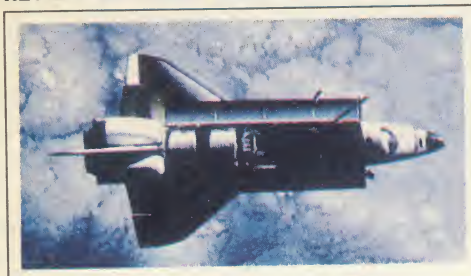
Bernoulli Box: An ingenious variation on the hard disk theme in which the disks themselves can be removed from the drive but offer only 5Mb or 10Mb capacities, providing a sort of compromise between traditional hard disks and the floppy.

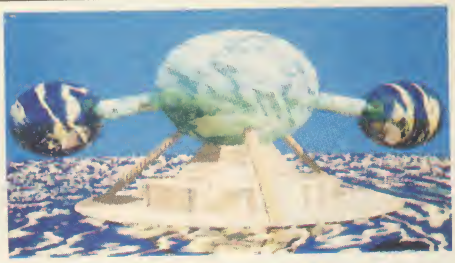
Platter: A floppy disk contains one platter or disk. A hard disk drive may contain several platters, each with its own pair of read/write heads. The advantage of multi-platter drives is that data can be accessed faster than on a larger, single platter. The disadvantage is that multiple platters multiply the cost.

SCSI: A type of interface, SCSI (pronounced "scuzzy") stands for Small Computer Systems Interface. It is used for many non-PC hard disks, including models for the ST, Amiga and Macintosh. SCSI drives are not interchangeable with standard PC drives, each requiring a different kind of controller.

Winchester: Alternative name for hard disks (allegedly because the first IBM hard disks were designated 20/20 – the same as the famous Wild West rifle).

Hardcards: A type of hard disk in which the drive mechanism and controller are contained on a standard expansion board. These are almost entirely confined to PC-compatibles. The advantages are that they are cheaper (since they don't require cases, etc) and are usually a shade faster than similar, external drives.





I think therefore I HAM

One of the many paint packages out on the Amiga, Photon Paint 2.0 *is one of the few to utilise the Amiga's 4096-colour HAM graphics mode. Rik Haynes sees whether it HAMmers home this advantage...*

PHOTON PAINT 2.0 ● Paint and Animation package ● AMIGA (At least 1Mb of RAM recommended) ● £89.95 (£45 upgrade offer available to owners of Photon Paint 1.0. Further details on 0480 496497) ● PUBLISHED BY MICROILLUSIONS, USA ● All products mentioned in this review available from Amiga Centre Scotland on 031 557 4242

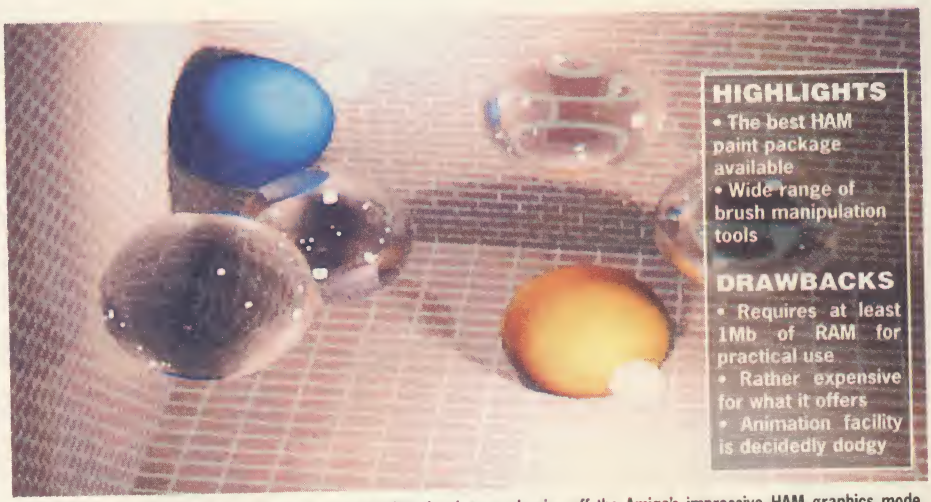
If you've ever digitised or ray traced a picture, you've probably created an image which is fair, but which needs a little tweak here and there to produce a masterpiece. Well *Photon Paint* can do just that, and more, as it offers you the chance to manipulate a HAM picture in a wide variety of ways.

Features

As well as containing the standard paint package functions such as draw, fill and magnify, *Photon Paint* incorporates many sophisticated brush functions ranging from tilt, twist and adjustable transparency to surface and contour mapping, and shadowing with adjustable size and offset. Also included is an unimpressive animate facility, which seems to require at least 2Mb of RAM to run properly.

User Interface

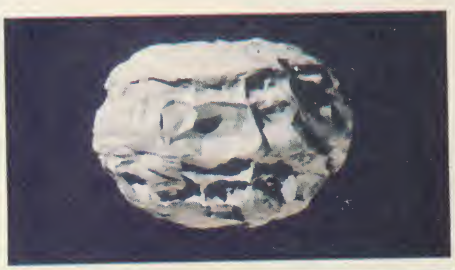
Photon Paint's control is like most other paint packages, via menu and icon options. If you're using a standard unexpanded Amiga A500 you'll come across frustration, as every new function you access will have to be loaded from the program disk, as there's not enough memory on-board to load all the functions in at once. Even owners of 1Mb decks will find difficulty in using



HIGHLIGHTS
- The best HAM paint package available
- Wide range of brush manipulation tools

DRAWBACKS
- Requires at least 1Mb of RAM for practical use
- Rather expensive for what it offers
- Animation facility is decidedly dodgy

• All pictures accompanying this review are public domain pictures showing off the Amiga's impressive HAM graphics mode. Further details from 17 Bit Software on 0532 420043 or George Thompson Services on 0770 82234



TECHNOBABBLE

HAM

HAM (Hold And Modify) is an Amiga graphics mode that produces 4,096 colours simultaneously on-screen.

And there's more...

In order to get the most out of HAM, here is a list of recommended optional extra products to use in conjunction with *Photon Paint*...

SCULPT 3-D ● Ray Tracing ● £85 ● PUBLISHED BY BYTE BY BYTE, USA
Probably the best ray trace program out the Amiga, *Sculpt 3-D* allows you to design 3D objects and scenes using all of the Amiga's graphics modes.

C-LIGHT ● Ray Tracing and Animation ● £49.95 ● DEVELOPED BY PETERSEN ENTERPRISES, USA ● DISTRIBUTED IN UK BY ARTRONIC SYSTEMS ON 0423 525325
C-Light (reviewed in *Express* 29) is one of the cheapest ways into ray tracing and animation on the Amiga.

DIGI-VIEW GOLD ● Video Digitiser ● £129.95 ● PUBLISHED BY NEWTEK, USA
A combination of hardware and software, *Digi-View Gold* lets you grab a real-life image using a video camera. Once grabbed, the image can be manipulated with a paint package such as *Photon Paint*. Further information on video digitisers can be obtained from *Express* 17.

memory-hungry functions such as the 'animate' command.

Operation execution ranges from fair to sub-tortoise speeds, with some of the brush functions taking an inordinately long time to work.

Documentation

The ring-bound "user friendly" manual is a sickeningly typical American affair, taking you through every function in a "as it appears on the menu bar" manner. It lacks an index, but includes tutorials designed to help beginners, plus information on *Photon Paint's* file formats which programmers may find useful.

Verdict

There's little competition in the HAM paint program market, so saying *Photon Paint* is the best doesn't mean that much. Owners of a standard 512K Amiga A500 can just about forget *Photon Paint*, as you have to continually swap disks when using the program due to lack of memory. Even 1Mb'ers will find themselves running out of memory with alarming regularity.

Deluxe Paint III is a far superior paint and animation package, but if you really need to draw in HAM mode, there's nothing better than *Photon Paint* available at present. It's a pity about the author though: Heidi Turnipseed? You've got to be kidding!

✪ ✪ ✪ ✪

What else is available?

DELUXE PAINT III ● Paint and Animation package ● £79.99 ● PUBLISHED BY ELECTRONIC ARTS ON 0753 46465
Superior in ever aspect to *Photon Paint 2.0* – except it doesn't support HAM – *Deluxe Paint III* (reviewed in *Express* 20) is *the* paint and animation package for the Amiga.

DIGI-PAINT 1.0 ● Paint ● £39.95 ● PUBLISHED BY NEWTEK, USA
The first program to utilise HAM, *Digi-Paint 1.0* is starting to look its age, although a more advanced Version 3.0 (wonder what happened to 2.0?) is due for imminent UK release.

PRISM! ● Paint ● £Price Unavailable ● PUBLISHED BY IMPULSE, USA
PRISM!'s user unfriendliness and lack of features make it possibly the worst HAM package around.

Photon torpedoes

Photon Paint 2.0 is supported by a number of other related products...

PHOTON VIDEO: CEL ANIMATOR ● £99.95 ● PUBLISHED BY MICROILLUSIONS, USA
Allows you to create "computer movies" including pencil testing and primitve drawing and sound capabilities.

PHOTON VIDEO: TRANSPORT CONTROLLER ● £299.95 ● PUBLISHED BY MICROILLUSIONS, USA
Used in conjuction with a paint or animation package to record aniamtion sequences using both frame-by-frame and segment recording techniques.

PHOTON VIDEO: EDIT DECISION LIST PROCESSOR ● £399.95 ● PUBLISHED BY MICROILLUSIONS, USA
Should only appeal to semi-professionals wanting more effeciency in this time-critical aspect of video editing.

PHOTON PAINT 2.0 EXPANSION DISKS ● £24.95 ● PUBLISHED BY MICROILLUSIONS, USA
An utter waste of disk space this one, as it's just a collection of digitised wood and marble surfaces. Wow!

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BASIC English

There is a bewildering number of books on BASIC in your local bookshop. Which ones will get you programming quickest? Basil Pigg scans his bookshelves...

Programming is fun; it's the point where your computer stops being a toy and starts being a tool with a lot of potential. Though there are a million languages in the world, everyone starts with BASIC, and despite its simplicity it is capable of anything you can achieve in C, Pascal, Forth, Lisp and the rest. Get programming and you could be writing your own games, selling your commercial programs, writing routines to run your club or small business, devising educational listings to help your kids or brothers and sisters with their homework... anything is possible.

It used to be fashionable to sneer at Beginners All-purpose Symbolic Instruction Code as a sort of computing instamatic camera, a point-and-shoot device for writing programs which produced fuzzy and amateurish results.

Now, however, it's back in fashion, just as 'compact' cameras now bristle with technology and can produce results as good as the professionals. Ever faster processors mean that easy and straightforward BASIC listings run quite fast enough. An Archimedes runs BASIC so fast you can write eight-way scrolling shoot-'em-ups quite happily, and ST owners can write their own perfectly respectable games in STOS BASIC, with an Amiga version on the way. PCW owners get a free implementation of BASIC which has everything you need to write your own database or accounts program. Just about every machine comes with some sort of BASIC, and you can be writing your own stuff straight away and with no outlay.

The only problem is that more often than not your helpful handbook gives you little more than a list of commands, no good if you want to be told how to write a program.

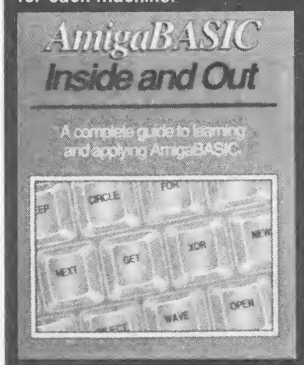
Here then is a list of the best books that should start you off in BASIC. Soon you'll be writing your own arcade adventures and shoot-'em-ups, selling your database and accounting packages and brilliant utility ideas...

Your machine

A quick guide to some of the books specifically for your machine that you ought to look at first if you're into BASIC. 'Built-in BASIC' below means that BASIC is on ROM and always there, while 'Bundled BASIC' means you get it on disk when you buy the machine. Generally, the Abacus or Compute! books are well worth considering.

Your first port of call would be your local High Street bookshop; if they don't have them quote the ISBN number and they'll order it for you. Otherwise any of the books below can be ordered from Computer Bookshops (30 Lincoln Rd, Olton, Birmingham B27 6PA, tel. 021-706-1188).

We've tried to give you a beginner's book and a more advanced guide (in that order) for each machine.



Amiga

- Bundled BASIC. Try: Elementary Amiga BASIC (Compute!, £14.95) ISBN 0-87455-041-6
- AmigaBASIC Inside and Out (Abacus, £18.95) ISBN 0-91643-987-9
- Advanced Amiga BASIC (Compute!, £18.95) ISBN 0-87455-045-9

Atari 8-bit

- Built-in BASIC. No specific BASIC guides as far as we know, but try:
- Atari XE (or XL) Users Handbook (Weber Systems, £19.95) ISBN 0-93886-241-3 which has a chapter on BASIC to supplement the Atari's poor manual.

BBC

Few books on BASIC of course. Just about the only one you'll find is 30 hour Programming in BBC BASIC (NEC £12.95) ISBN 0-86082-269-9

C64

Built-in BASIC which is recognised as the worst on any home micro. You'd be better off buying another one. If you want to explore the one you have:

- Advanced Commodore C64 BASIC Revealed (Collins, £9.95) ISBN 0-00-383088-8

CPC

Built-in BASIC. If you don't like the guide that comes with it then try:

- Amstrad - Starting BASIC Book 1 (Glentop, £4.95) ISBN 0-907792-39-1

MSX

Built-in BASIC. You may have problems getting books on the MSX in the shops. Try Kuma on 07357 4335. They do:

- Starting with MSX (£5.95) which introduces BASIC, and the more advanced:
- Programming in MSX BASIC (£7.95)

PC

Usually PCs come with GW or compatible BASIC (though the Amstrad 1512 and 1640 come with BASIC 2 with GEM). Plenty of books available, none of them vastly superior to the others; see what catches your eye in the bookshop, or try:

- GW BASIC Quick Programming Reference Guide (Abacus, £8.95) ISBN 1-55755-001-8

PCW

Bundled BASIC. Except for very early machines, there is no manual. Go for:

- Program Your PCW (Glentop, £7.95) 1-85181-151-6 or the detailed
- Mallard BASIC Introduction and Reference (Amstrad, £9.95) – no ISBN but available from Locomotive on 0306 740606.

Spectrum

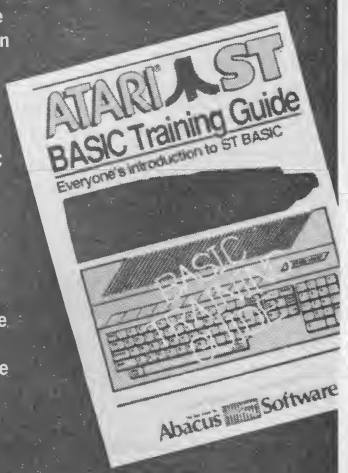
Built-in BASIC. The manual supplied is a really good introduction to the language.

- 30 hour BASIC for the Spectrum (NEC, £9.95) ISBN 0-86086-394-6

ST

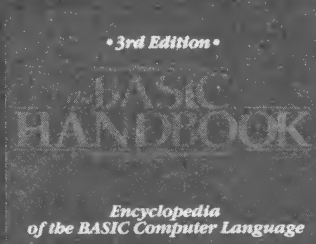
Bundled BASIC and quite a few books around. Try:

- Elementary ST BASIC (Compute!, £14.95) ISBN 0-87455-034-3
- ST BASIC Training Guide (Abacus, £14.95) ISBN 0-91643-957-7



And finally, for the real enthusiast...

BASIC HANDBOOK by David Lien ● Compusoft ● £22.95 ● ISBN 0-932760-33-3



The third edition of this book is for the serious BASIC programmer. It's an encyclopædia of the BASIC language, detailing the syntax of, and giving examples on, everything from ABS to WINDOW. It's not a tutorial book, and doesn't attempt to teach you BASIC.

Enthusiasts will be interested to see the range that today's BASIC now encompasses, and will be thrilled to know that it is available in French, Swedish,Italian, Norwegian, Spanish and Dutch, when it is known as Het BASIC Handboek.

Though it attempts to cover all machines, it is of course PC and (being American) Mac oriented. If you're serious about your BASIC you'll want it to sit next to the first and second editions on your bookshelf.

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Brush Strokes

Well, Microillusions has finally got around to releasing *Photon Paint 2* in this country after a delay of almost 4 months – But was it worth the wait?

I must admit that my initial impressions of *Photon Paint 2* weren't exactly what you could describe as complimentary – at one point I was on the verge of throwing the master disks into the back of my disk box with the sole intention of forgetting the program as quickly as possible. But, being a very fair kind of chap (stop laughing Rik!),I decided that it was only fair to give *Photon Paint* time in which to prove itself.

I found that the main problem when dealing with *Photon Paint 2* is that I kept wanting to compare it with *Deluxe Paint 3*. This really wasn't fair, as producing a HAM paint package is a totally different ball game altogether – anyone who has programmed HAM mode will confirm this. HAM mode does not provide complete control over the colour of every individual pixel and therefore getting a stable picture is almost an art form in itself.

Probably the most important enhancement to version 2 lies in its brush menu. When the original *Photon Paint* was released, its brush manipulation tools were hailed as some of the most powerful to be found within any Amiga paint package and with this latest release, many a graphic artist is going to be won over. Top of the list of brush manipulation tools to be added is the perspective 3D rotation, which will be familiar to anyone who has used *Deluxe Paint 2* or higher.

I must admit that after many hours tinkering, I'm a fan of *Photon Paint 2*. I wouldn't want to have to choose between *PP2* and *DPaint 3* – they really are two entirely different types of paint package and you would probably be best advised to buy both! The combination of *Photon Paint 2* and *Deluxe Paint 3* firmly establishes the Amiga as the most exciting and powerful piece of graphics hardware this side of the Quantel Paintbox. For the complete, authoritive review of *Photon Paint 2*, check out page 28 of this issue of *Express*.

Charge of the Comms Brigade

Computer Communications has always been one particular area of computing that I have tried my utmost to steer well clear of. After a brief excursion into comms back in my technical college days, several bad experiences soon turned me against those 'orrible little boxes. Ever since, I have buried my head deep in the sand as soon as word such as 'modem', 'baud rate' and 'parity' reach my ears.

Trying best to put the past behind me, I decided that it was about time I took a look at the current state of bulletin boards and to see what they have to offer for the discerning Amiga user.

The good news is that boards catering specifically for the Amiga user are springing up all around the country and many machine-independant boards have already taken the Amiga under their wing by adding Amiga-specific areas to their systems.

Several Amiga games programmers run their own bulletin boards. One the of the best is ID2, which is run by Tony Cooper, programmer of Hewson's best selling Cybernoid series of games. Tony's board caters for several machines, including the PC and ST, but it still manages to deliver one of the best Amiga sections that you'll find on any BBS. For the Amiga user, there's a wide range of free downloadable software including several very useful utilities that you won't find in the PD libraries. If programming is more your forté, Tony is running a regular 68000 assembler tutorial as well as providing technical assistance to anyone who asks for it. ID2 can be contacted on 0903 700771 24 Hours a day. Protocols supported are v21, v22, v22b andv23.

Of the various Amiga-specific boards, one of the best is MABBS, which can be contacted on 021 444 8972. To access MABBS, you'll have to register as a member by giving the Sysop a few details aboutyourself such as full name, voice telephone number etc. If accepted, you will be registered as a member and can then benefit from the vast range of facilities that the board has to offer. MABBS supports V21,V22,V22b and V23 protocols and is online 24 hours a day.

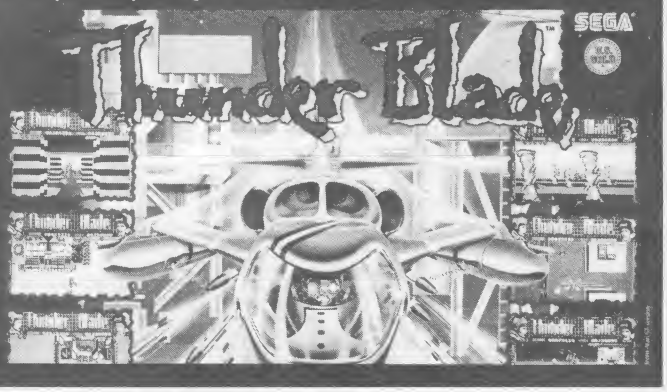
Another very good Amiga-specific board is run by the UK Amiga Users Group (UK AUG). TABBS (standing for Trevor's (hippo to his friends!) Amiga BBS!) is free to members of the UK AUG and registered users and offers up to the minute news, technical help and free, downloadable PD software. TABBS can be contacted on 0533 550893 and supports V21, V22 and V23 protocols and is online between 6pm and 9am weekdays and all day Sundays.

Other noteworthy Amiga BBSs include 01 For Amiga (01 3771358, 6pm to 8am) and the Amiga Board (0268 510495, 6pm to 8am). All support the standard V21, V22 and V22b protocols.

Jason Holborn

Flying High

There's just enough space to give you this great little tip for US Gold's arcade conversion ThunderBlade. When the title screen appears, type in 'CRASH' and the screen should flash to indicate that the cheat mode is active. Now when you are playing the game, pressing the 'HELP' key will send you straight onto the next screen.



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Three in one

A while back Condor Computers announced *Troika*, a 1040 comprising a Mac and PC emulator. Nothing startling about that — emulators of such a nature already exist. It seems the configuration floated several months ago was very provisional indeed!

Troika will be three machines under one roof — not one machine with hardware-based emulators sticking out the back. What you'll get for your £2,500 is a 1040 ST, Mac Plus with 128K ROMs and PC compatible with V30 processor rated at 12MHz. Also under the one roof will be a communal hard drive, 3.5-inch floppy drive and 5.25-inch drive. The whole lot will be housed in a trendy tower system. Oh, and you get a 14-inch multisync monitor capable of displaying the high resolution monochrome Mac and ST modes, medium and low resolution ST modes, and CGA and VGA PC modes.

The 1040, naturally enough, has 1Mbyte of RAM while the Mac and PC have 512K each. The machine that's in operation can 'pool memory' and use the RAM contained in the other two computers. This means that each machine has access to 2Mbytes of memory.

What's particularly exciting about the setup is the fact that files will be interchangeable. In other words you'll be able to take a file created, say, in ST *Protext* and load it into *Macwrite*. The fact that Condor has managed to get a floppy drive to cope with MS-DOS, ST and Mac formats is extraordinary. Although MS-DOS and ST formats are largely similar — to the extent that the ST can read and write PC-formatted disks — the Mac format is decidedly dodgy. All three machine will share the same hard drive, but the disk will have three quite separate partitions.

Condor is looking at a September release date for *Troika* (surely not a PC Show launch?). But if you want to know more about the proposed system before that time, contact Condor at **31 Palace St, London, SW1E 5HE** (01-828 9755).

Power processing

After I revealed last week that Third Coast is planning a series of go-faster boards for the ST, further details of one of the proposed processor accelerators for the 520 and 1040 have emerged.

The CMI 68000 Board will — in a nutshell — increase system throughput by between 35 and 40%, increase instructions speed from 8MHz to 16Mhz, increase ROM performance, and provide maths co-processing expansion capability.

There are two version of the board: one isn't a board at all, but simply a 16Mhz-rated processor which serves as a direct replacement for the standard ST processor. The 16Mhz 68000 executes instructions twice as fast as normal. Just imagine Starglider II at twice the speed... Mmmm, I want one!

The other board has room for a blitter chip and 68881 co-processor, and it contains a ROM chip which provides the system with 'Fast ROM access'. This executes ROM instructions at zero wait-states, consequently improving ROM access greatly.

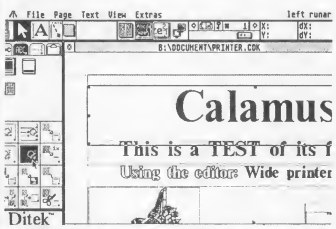
Many earlier 520s and 1040s don't have a blitter socket fitted as standard, so the chance to fit one with the minimum of fuss is appealing. Also on the board is a battery-backed clock.

If you're interested, you can contact Third Coast at Unit 8, Bradley Hall Trading Estate, Standish, Wigan, WN6 0XQ (0257 426464). The price for the replacement 68000 is £99, while the basic plug-in board costs £149.

Summer shorts

● Gary Drake at Tempest would like me to pass on his thanks to all those that responded to his proposition for a cheap ST hard drive. The final knots are being tied, so you should see an auto-booting 20Mbyte drive for around £350 soon. It'll be the cheapest auto-booting ST on the market when it appears — watch out for it! By the way, Gary informs me that the 10Mbyte drive is still a possibility. Tempest is at **EOS House, 145 Staple Hill Rd, Fishponds, Bristol, BS16 5AG** (0272 574569).

● Signa (0252 341600) is offering a demo disk of *Calamus* for a stiff £20 (redeemable when purchasing the full version). It's for those interested in trying the DTP software before parting with £399. All of *Calamus's* features are accessible except for the save option.



• £20 workable demo of Calamus available from Signa

● Steinberg has changed the name of its forthcoming sequencer from *Cubit* to *Cubase*. This has been done to avoid a legal wrangle with ICL which markets a managment program for mainframes with the same name. Evenlode (099 3898484) will be handling the distribution of *Cubase* when it appears.

That's right

Another word processor: *That's Write*. That's right, *That's Write*, you read write... err, right. However, judging by the specifications, it could be a real cracker. How's this:

● Automatic indexing.
● Font editor for characters, fonts, logos, symbols.
● International editable keyboard.
● Automatic hyphenation with user exceptions.
● Integrated spell checker and mail merger.
● Optional dictionary and hyphenation rules for foreign languages.
● Snapshot accessory.

There's support for all types of printer — 9-pin, 24-pin, laser (including Atari's). Text and graphics can be mixed, micro-spacing is employed for perfect justification, supports built-in printer fonts and graphic GEM fonts (Helbo, Symbol, Gothic, Times, etc).

Stylesheets for both paragraphs and pages can be implemented. Paragraph stylesheets specify font and style, tab stops, margins, indents and line spacing. Page layout specifies size of paper, margins, number of columns, and headers and footers.

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Adrion McHerriot

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PC UPDATE

GEM out of the Window

Do you get very excited when your favourite Eurovision song gets practically no votes from the Euro voting panels? Do you heap abuse at the judges when Ms Guatamala gets no votes and doesn't even make it to the shortlist? It's a shame when your favourite seems to be losing out to the market leader.

So it is with GEM and Windows. It appears that Windows is beginning to win out over its Digital Research rival, almost entirely because Microsoft is writing *Presentation Manager*. As I'm sure you're aware, *Presentation Manager* is the new graphical front-end which fits OS/2 on the IBM PS/2 range of micros. The industry seems to be coming round to the idea that IBM will eventually win the day with PS/2, and the wise money is to get in there early with *PM* applications. *PM* is close enough to Windows that applications written for it now will be comparatively easy to translate later.

Where does this leave GEM and DR? DR has done well with GEM, making the system good and fast (comparatively) and interesting a number of third parties in writing software for it. They tied up a deal to bundle the package with Amstrad micros which has given them a huge user-base. As it stands at the moment, GEM will work adequately on an 8086-based PC and quickly on AT's and 386s. The design of the user interface is good and even allowing for the design changes DR was forced to make after a wrangle with Apple, it is a comfortable and adaptable environment. The only place it fell down was in giving the product no multi-tasking capability. I'm not a great fan of multi-tasking, but I have to go with the flow and say that's where things are heading. GEM XM, DR's multi-tasking version of GEM, never really caught on, and they didn't revamp it to have a second go.

Windows, in contrast to GEM, is ponderously slow on anything but a fast 386 machine, looks tacky (to my eyes anyway) and is far from being solid. There are still fewer applications for it than for GEM, but more and more are being released, and some Windows applications are now appearing without a copy of Windows included in the price – a sure sign that software companies at least think it has become a standard. Windows has the money behind it, Windows is likely to be the eventual winner, but I still think Ms Guatamala deserved better.

Printer Switch PPS

As they say in the trade, "This one'll run and run." Remember the switch box problem? Who could forget? I wanted a switch to flip a laser and a dot matrix printer between two PCs, and discovered that HP LaserJets don't like the switching transients manual switches can produce. In the end I've shelled out for an electronic 4 to 1 switch (allowing for expansion to the system) and will have to buy an extra printer port for one of the PCs to run the dot matrix.

The electronic switch comes from Technomatic (01-205 9558), costs £59 plus VAT and auto scans the four inputs continuously looking for data. Four little LEDs on the front panel show me this, and they only settle down when data's chugging through one of the lines. The whole thing works well. All I need now is the extra parallel port, perhaps on the readdressable floppy card I started searching for last week.

The panels come in a variety of resolutions and prices, starting with a CGA unit, the Sharp QA25, retailing at £700. One step up leads to the Kodak Datashow HR, which gives EGA and CGA for £1,495. These two models come with presentation software and the HR has a remote control unit, too. Next up is the RPS Symposium 3 which does VGA/ EGA/ CGA/ MDA and Hercules for £1,995. Top of the range is the Sharp QA50 at £2,295, which does everything the Symposium will with a very high quality display. All prices exclude VAT. Colour LCD panels are on the cards within the next year or so.

More printing

One of the more sophisticated pieces of software supplied with MS-DOS is the PRINT.EXE utility. This is a print spooler which will carry on printing text files while other things are going on on your PC — yes, it's multitasking. Assuming DOS can find PRINT.EXE, the command PRINT FILEA FILEB ETC will print three files 'FILEA', 'FILEB' and 'ETC' in a queue.

Coincidentally, PRINT.EXE is what's missing from the two disks you get after unloading the *Contacts Manager* programs from the current *PC Plus SuperDisk*. To save you the cost of a phone call to the support line, you need to copy PRINT.EXE onto the CONTACTS 2 disk before running MANUAL.BAT to print *Contact Manager's* documentation.

Simon Williams

● Visualex's LCD projection panels offer a way of using your PC display for presentations via overhead projectors. (See Shining through)

Different PC graphics modes are catered for, with prices ranging from £700 to £2,300 (ex. VAT).

The panels are mono only at the moment, but colour is apparently on the way...

Shining through

Amazing things, LCDs. Not only are they becoming the be all and end all of low-end portable PCs, but they're beginning to come out in colour and now you can even use the mono ones on your overhead projector. You don't have an overhead projector? – you don't know how to live, do you?

Those who do know how to live, and use both an overhead projector and a PC, might be very interested in the range of LCD panels marketed by Visualex of Henley (0491 579789). These panels fit over the bed of an overhead projector and connect via a cable to the signal input on the back of a PC monitor. Anything that is then displayed on the monitor also appears on the LCD panel, and the projector lamp shines through it to display the screen on the wall.

Sinclair 1, CPC 0

So Amstrad has introduced a new Sinclair ZX Spectrum 'Action Pack,' including a light gun? Apparently there's an 'extensive' television and press advertising campaign planned for November as part of the Christmas lead-up.

Oh goodie. Given the sudden unexpected increase in demand for the CPC last Christmas – which has continued ever since – no doubt Amstrad has something similar planned for us.

Ah, yes, well... There are, it seems, "no plans at the moment" to offer would-be CPC users a similar opportunity to "play a more active role in games supplied." Once again Amstrad has chosen to ignore the machine that started the whole thing off.

No explanation has been forthcoming on this extraordinary decision.

A belated Christmas present

It's believed that approximately loads of you went out last Christmas and bought Ocean's *Giants* compilation. So roughly loads of you will be as pleased as I was to find a poke for *Gauntlet II*, as featured on that colossal collection. Say thank you to Julian Page, everyone.

• Giants gets a good poking up the Gauntlet

```
1 'GAUNTLET II - Disc
2 'GIANTS Compilation
3 '300 Health Boost
4 'for food+cider
5 'By Julian Page
6 'For NCE June 1989
10 DATA 84,21,00,BE,0E,07
20 DATA CD,D4,BC,3E,07,32
30 DATA 82,BE,22,80,BE,21
40 DATA 00,01,0E,41,11,00
50 DATA 00,DF,80,BE,F3,3E
60 DATA C9,32,0E,01,CD,04
70 DATA 01,21,40,00,22,D3
80 DATA 03,C3,00,02,XX
90 DATA 3E,03,32,9C,28,C3
100 DATA 00,01,YY
110 MODE 1
120 READ A$
130 IF A$="XX" THEN 160
140 POKE &BE00+X,VAL("&"+A$)
150 X=X+1:GOTO 120
160 READ A$
170 IF A$="YY" THEN 200
180 POKE &40+Y,VAL("&"+A$)
190 Y=Y+1:GOTO 160
200 PRINT"INSERT GAUNTLET II"
210 PRINT"DISC & PRESS A KEY"
220 CALL &BB03:CALL &BB06
230 CALL &BE01
3 '300 Health Boost
4 'for food+cider
5 'By Julian Page
6 'For Amstrad Action.
80,BE,F3,3E
```

```
60 DATA C9,32,0E,01,CD,04
70 DATA 01,21,40,00,22,D3
80 DATA 03,C3,00,02,XX
90 DATA 3E,03,32,9C,28,C3
100 DATA 00,01,YY
110 MODE 1
120 READ A$
130 IF A$="XX" THEN 160
140 POKE &BE00+X,VAL("&"+A$)
150 X=X+1:GOTO 120
160 READ A$
170 IF A$="YY" THEN 200
180 POKE &40+Y,VAL("&"+A$)
190 Y=Y+1:GOTO 160
200 PRINT"INSET GAUNTLET II"
210 PRINT"DISC & PRESS A KEY"
220 CALL &BB03:CALL &BB06
230 CALL &BE01
```

By the way, if you've written pokes or discovered cheats for games you'd otherwise never even come near to completing, why not share them with the rest of us? Send your barrier buster to: *Steve Carey, CPC Centre, NCE*, 4 Queen St, Bath BA1 1EJ.

Nice one, Elite

Over the past six months or so there's been a growing trend among budget software producers towards the £2.99 price level – a sudden increase, I need hardly remind you, of 50 per cent (approx.).

Well, Elite has had releases at both £1.99 and £2.99, and is in a position to make comparisons. Furthermore the company has commissioned Gallup to look at the pricing system. And Sales Director Bernard Dugdale believes that Elite can sell three times as many games at the lower price. Result: "We're sticking at £1.99."

Incidentally, in 1988 Elite had five games reviewed in *Amstrad Action*, and achieved an average rating of 71 per cent. Not only was this higher than other budget specialists, it was a better strike rate even than some full price software houses. So it appears that, despite what's often said, "quality" and "budget" are not mutually exclusive labels.

CPC exclusive

Tony Palfrey of Innovation Research and Development tells me of a clever idea to market *Macrolink*, a new British computer language available only for the CPC that produces assembler source code (though PC versions and others are under way).

SOS

I've just had a letter from David Mitchell of Clacton-on-Sea, who wants to know where he can buy continuous stationery – not fanfold, but on a roll. "I write lots of fairly short letters or notes, and using fanfold I get a lot of small pieces of paper, most of which get thrown away, with the consequent wastage rate of about 40 per cent."

This sounds like a brilliant idea, David. I seem to recall that genial genius P.G. Wodehouse used to type on a continuous roll paper (he said he always lost his thread when he... erm, what was I saying?).

Anyone out there got any ideas ?

"We find that even a BASIC programmer who's never handled assembler can immediately start to program in pure machine code," said Palfrey, "using the *Macrolink* language of key word routines. An experienced user can produce up to 5,000 bytes of debugged code a day." Since the language writes in source code the routines are more adaptable than in any other language, he claims. But you don't have to take his word for it – £3.50 (redeemable against orders), IRD (phone number 0733 232110) will supply a video which demonstrates the language.

Steve Carey

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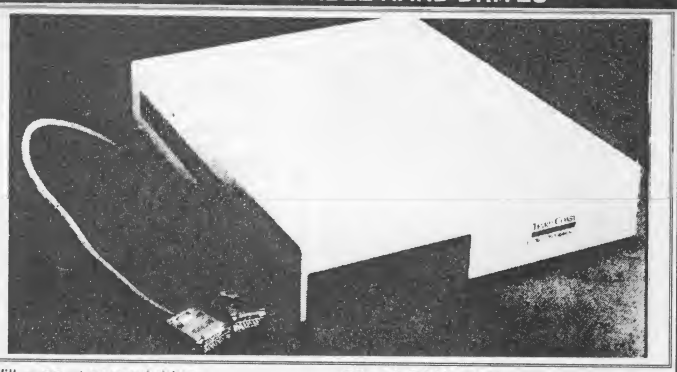

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SPEX

Now, even smoother...

Mark Bailey's scrolling message routine of issue 26 seemed to impress everyone who took the trouble to type it in. Now, in the great traditions of washing powder, I've just been sent a new, improved version. Surprisingly, it manages to considerably enhance Mark Bailey's already excellent program.

The sender was an old friend of mine, Antony Purvis. He thought the original was "a lovely piece of code", and said that Mark "certainly knows what he's doing".

Purv's improved version runs independently of BASIC and under interrupt control, hence even smoother scrolling. To benefit from this new, improved scrolling routine, type in the following listing after the original program, or type it in separately, save it, load the original routine and then MERGE this program over it:

```
40  DATA "Here It Is! The
    New Modified Scroller!
    Original Scroll Routine
    Written by Mark Bailey -
    Interrupt Driver & Code Patching
    By Purv In 89..."
150 CLEAR 59985: RESTORE 200
160 READ A
165 READ B: IF B=999 THEN GO TO 180
170 IF B> 256 THEN LET A=B: GO TO 165
175 POKE A,B: LET A=A+1: GO TO 165
180 FOR n= 65294 to 65322: POKE n, 0:
    NEXT n: POKE 60100,0
185 RANDOMIZE USR 65281
190 STOP
200 DATA 59986,245,197,213,229
210 DATA 60060,19
220 DATA 60073,225,209,193,241
230 DATA 195,56,0,229,235,203
240 DATA 22,235,19,225,24,228
250 DATA 65280,243,33,0,254,17
260 DATA 237,176,65323,62,254
270 DATA 237,71,237,94,201,237
280 DATA 86,201,60052,223,80
290 DATA 65021,195,82,234,999
```

If you use MERGE, you must merge the prog listed here into the original one from issue 26's *SPEX* which should be in memory. Purv has also had a rummage through the code and produced for your delectation the following pokes to use in conjunction with his Mega Scroll Modifier Program.

● **POKE 59998** will control how many one-pixel scrolls are performed between each letter. 8 is the normal but 9 will spread the letters out a bit. Values of 10 and higher will cause corruption.

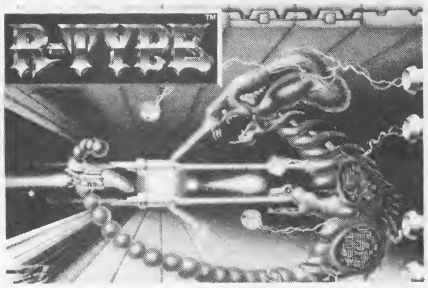
● To control which line the scroller scrolls:
PRINT AT (desired line no.), **31**; (semicolon is vital)
POKE 60052, PEEK 23684
POKE 60053, PEEK 23685

Many thanks to the one and only Purv for sharing his ample talents. If anyone else has got a program, be it useful, innovative or frivolous – but definitely compact enough to fit the confines of this column – send it in! To be really nice to me, send a listing and tape with your routine recorded on it if poss. The address for everything is SPEX, New Computer Express, 4 Queen Street, Bath BA1 1EJ.

Incompatibility blues

Mr Postman delivered a very distressing piece of mail the other day that wasn't a bill. It was a letter from Jeff of North Shields concerning the dreaded +2A:

"Could you please help me. I bought a Speccy +2A and rushed home to try the 6 free games. They were rather pathetic but nonetheless worked, and my daughter found them quite amusing. And now to the crux of the matter. Since then, I have tried 28 original games, of which only 9 worked...they either hung up or bombed when you touched a key... Could you tell me what you think could be wrong or if the games I have tried are not compatible with the +2A? I might add that if you think it's a compatibility problem I shall have to give up on Sinclair products as there would be no point in owning a computer of which less than half the software base is compatible, going by my experience anyway."



• R-Type: Will it run on the +2A?

According to Jeff, some of the games that won't work are: *R-Type, Renegade, Cobra, Dizzy 2, Pacland, Combat School, Barbarian 2* and *Short Circuit*. All of these loaded on a standard 48K Speccy.

Well, Jeff, I hate to break this to you, but (gulp) it is a compatibility problem. If the games worked on a 48K there's nothing else it can be. Apparently, games that utilise IN,A(10495) don't work with the +2A. Amstrad's feelings at the time of release were that whilst older software might cause problems, up to date games wouldn't. Looking at some of the titles on your list, this obviously isn't the case. I think trouble comes about because the majority of programmers aren't acquainted with exactly how incompatible the +2A is yet. I'd be interested to hear from anybody else suffering from incompatibility blues.

It's a pretty rum situation to be in and, where possible, I'd advise everybody to try and buy one of the original grey +2s rather than the new black version. As for abandoning your Speccy, don't do it!! Just think of all the hundreds of really good things you'll miss out on. Well, all right, the one really good thing you'll miss out on. (Clue: Appears every week on page 36 of *Express*.)

Robin Alway

Free user group!

Last issue I told you about a small PD software house that was recommended to me by a happy customer. Boss of same company has just written to tell me about a +3 users group he's started.

Anyone owning a Spectrum +3 is welcome to join and, amazingly, it's all totally and utterly free! Members will receive a newsletter featuring news, games, letters and listings, and the groups roll-call already boasts two Grecians and an Ozzie.

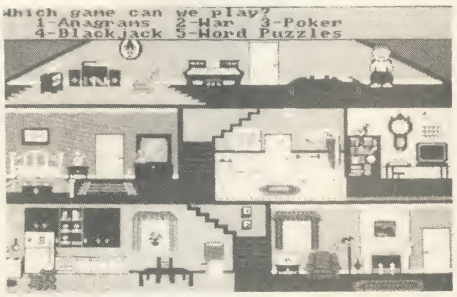
For details, write to the incredibly generous Lee Davis, +3D, 3 Hendre Close, Rhuddlan, Clwyd LL18 5UE. No doubt an SAE would be appreciated. (By Lee's bank manager, at any rate.)

SECTOR 64 SECTOR

Tips bits

● Thanks to Joe O'Brien for the groovy cheat for the mega *Wizball* from Ocean. On the title screen, just type WIZBORE, and the border should quickly flash. You will now have Rambo for a wizard, but still a mortal cat.

Andrew Cooper would like some cheats for *Bubble Bobble*, so if anyone has any then please send them to us at *Sector 64*. Also answering the question of any good printers for the C64, here are our suggestions. For really good letter-quality, there is the DPS 1101 from Commodore which uses a daisy wheel, so it can't do graphics etc but is capable of excellent letter-writing. If it's a graphics printer you want, then the MPS 801 is the one for you – but it offers very poor letter quality.



• Little Computer People: Already out on the 16-bits and out soon on the C64

Techie corner

Regarding a question about getting more than four colours on the C64's bitmap, the answer is yes – but you can only have three per character square.

This is done by using the colour memory and what value you give to the char screen – i.e. the top 4 bits of a value store one colour, and the low 4 bits store another. For example, if you put $6e to location $0400 while the bitmap is on with multicolour, you would get blue ($6) and med blue ($e), and the third colour would depend on the value in the colour memory.

Remember, if you have any problems, or you'd like a cheat or listing printed, then why not let us know.

New Releases

Coming to your software store on June 8th:

● Barry McGuigan's Boxing ● Mastertronic Plus ● £2.99

● Advanced Basketball Simulator ● Mastertronic Plus ● ££2.99

● Transformers ● Mastertronic Plus ● £2.99

To be here on June 24th is:

● Little Computer People ● Mastertronic ● £2.99

● Code Masters too has some new releases on the way:

● Rally Cross ● Code Masters ● £2.99 ● 13 June

● Rockstar ● Code Masters ● £2.99 ● 13 June on disk

● Freestyle ● Code Masters ● £2.99 ● 20 June

● Image Works has a new stunner from Tony Crowther called *Phobia*. With one and two-player options, *Phobia* takes the form of a horizontally scrolling shoot-'em-up, and features an innovative graphic style using a technique never before seen on a C64 game, which produces a level of colour scrolling unsurpassed by any other C64 program currently on the market.

● Speedball ● Image Works ● £8.99cs, £12.99dk

The highly-successful 16-bit game has now been converted to the C64, and promises to be just as addictive as the original 16-bit versions. The tape version should be out as you read this, with the disk version to follow very soon.

Speedball is a fast ball game, in which strategy and speed are essential for success as the players joust for the ball. Weaponry ensures that you can blow the opposition away. Another dimension is added to *Speedball* with tokens which appear on the floor of the Speed Dome, which, when collected, provide players with an assortment of power-ups such as faster movement, better weapons etc.

Stay tuned

Next week we'll be reporting on what we thought of the recent Commodore exhibition at Novatel...

Ian + Mic

Boogie on down

Andrew Cooper also sent in a short listing that anyone could type in:

```
10  POKE 53281,1:POKE 53280,1 :REM *COLOUR NO.1*
20  POKE 53281,0:POKE 53280,0 :REM *COLOUR NO.2*
30  FOR A=0 TO 20:NEXT:GOTO 10:REM *ALTER LOOP
    TO SUIT*
```

Then boogie on down to your favourite record.

Clockwatching

Thanks to Paul Dagnall, here's another clock program – so there's no excuse to lose track of time.

```
001 PRINT "[SHIFT CLEAR HOME]":POKE
    53280,0:POKE53281,0:POKE646,1:GOTO 500
004 PRINT "[SHIFT CLEAR HOME]"
005 FOR A=0TO255:POKE 646,A:POKE 53280,A
165 GOSUB 400
171 NEXTA
175 GOTO 5
400 PRINT "[SHIFT CLEAR HOME]"TI$"":RETURN
500 PRINT "[SHIFT CLEAR HOME]REALTIME CLOCK
    (C)1989 PAUL DAGNALL."
501 PRINT ""
502 PRINT ""
600 PRINT "ENTER TIME"
601 PRINT ""
602 PRINT ""
610 PRINT "(E.G.101530 WOULD BE 10:15:30 SECS
    A.M.)"
611 INPUT Z$
612 IF Z$="" "THEN 605
613 TI$=Z$
700 PRINT "RIGHT! NOW PRESS F7 TO SHOW THE TIME"
701 GETA$:IF A$=""THEN 701
702 IF A$="[F7]"THEN 1
```

Note: When you see these [ ], follow the instruction inside it. Example, [SHIFT CLEAR HOME], press SHIFT and CLEAR HOME. [F7], press the F7 key.

Got that? Of course you have.

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PCW PATCH

Diary for your dates

The idea of putting a diary on disk is an attractive one (especially to politicians, who can adjust their diaries in retrospect to make sure they, ahem, accurately reflect the events of the time).

dATAdIARY (their spelling, not mine!) is a diary with pages ruled in *LocoScript 2* containing all that vital information about tides, lighting up times and Independence Days in Burkina Fas O and so on. Comes in A4 or 'Filofax' sizes. It's constantly updated and runs 12 months from the point of purchase. A bit pricey though at £16.95.

Deviser Laurence Upton says he also does PCW troubleshooting in the Bath/ Bristol area; details on 0249 815082.

Existence; being; essence

Dave Watson of Cumbria asks me if there exists a thesaurus for the PCW. The answer is more one of definition than anything else: Database Software has advertised one since February but it's always "two weeks away" when you ask them. Details anyway on 0625 878888. Thesaurus buffs will note that 'existence' is the very first section in Roget's book and 'non-existence' the second.

Definitely in existence is Three Inch software's Thesaurus – but it's a *LocoFile* data file, so you must have *LocoFile*, and it doesn't work on an 8256, and at £14.95 it's rather pricey – but if you can't wait for Database's, call 01 829 9219.

Fewer notes

The Composer's Pen – which lets you put together music manuscripts on screen and print them out – has fewer notes than we said two weeks ago, but only paper ones. Not £300, but just £65, with a cut-down version for £25! Details on 0952 586979 or 021 456 1967.

I've stopped so I'll finish

To stop a BASIC listing or program midstream, press [f5]; [f3] resumes from where you stopped. Better than pressing [STOP] which abandons the operation completely.

Basil Pigg

From the Pigg book of records

WORST PROGRAM

The worst ever commercially released program for the PCW is a matter of opinion. Contenders could be Digita's E-Type (a typewriter emulator which had fewer features than LocoScript's free typewriter mode yet cost £24.95) and WordStar 4 (which cost £194.35 but could only print out a £ sign as 1 – perhaps the real price was £94.35?).

● Do you know of any PCW superlatives? Send to: The Pigg Book of Records, New Computer Express, 4 Queen St, Bath BA1 1EJ.

QL corner

Overheating

With summer on its way, many QL users, especially those who have expanded their systems with something like the Miracle Trumpcard, will experience problems caused by overheating. One common cause of overheating is the voltage delivered by the power supply being too high: the excess volts are dissipated in the QL voltage regulator as heat. The addition of an expansion unit means even more heat is generated, aggravating the problem.

One solution is to replace the power supply by one with a lower output, such as Care Electronics' Q Power, which costs £23. Care is on (0923) 672102.

Another, lower-cost, solution, is to replace the regulator in the QL by one which can handle more current. TK Computerware sells a suitable device for £4.75.

TK is on (0303 81) 2801. This does involve opening up the case, of course, but no soldering is required.

PDQC

PDQL's new *Lattice C* implementation for the QL and Thor should be ready by the time this issue is published.

Whilst the original *Lattice C* supplied by Metamco was reasonably usable, it had several very annoying bugs. For instance, register variables didn't work. The versions of *Small C* available from GST and Digital Precision, whilst adequate for learning the language, are unsuitable for serious software development, so the availability of PDQC is to be welcomed. The price will be around £60. PDQL is on 021-200 2313.

More bugs

● The command "DIR mdv8_" prevents "DIR mdv2_" from working properly.

● If a program "bombs out" in the middle of a procedure, typing "EDIT" will give a "not implemented" error message, and you will find yourself editing a line number that is not in your program.

A portable QL?

A long time ago I recall seeing a portable QL, cobbled together by a Quanta member, who had to do a lot of travelling in connection with his job.

He had the QL mounted in an executive-style case, with several NiCad rechargeable cells and a Sinclair pocket TV for display. You needed good eyesight to read anything off the TV screen, but it was still quite usable, and gave something like one hour's worth of computing before the cells ran out of juice.

Something similar might be possible using one of the new LCD pocket TVs for display. Has anyone tried this?

● This has to be the weirdest bug of all. Very occasionally, all your variable names get over-written by the word "PRINT". This has happened to me on a few occasions, and it is quite infuriating.

John Torofex

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BEEB BOX

Anti Auntie

There seems to be some attempt at resurrecting the title 'BBC Micro' for the series 3000 machine.

What a dumb idea! I am sure nobody ever liked that name; it reminds me of 'Aunty BBC' in too many ways. In fact the whole idea of keeping the BBC logo sucks, as far as this reviewer is concerned.

By the way, Acorn has had a few problems with early samples. Three dud keys, a sticking reset button, and an impossible to fit mouse connector cropped up on the unit I saw recently. Let's hope this is not typical.

If you think an A3000 is expensive, *Illustrator88* for the Macintosh costs £550, whereas *!Draw* comes free! with the Arc.

Down from the trees

BBC Soft has released a genealogical program called *Kinship*. Aimed at the educational market, *Kinship* comes complete with a database for the royal family going back to Henry VII.

However, you can create your own files, so anyone with an interest in family history can make use of it. Only Master 128 owners will be able run *Kinship*, though, as it utilises both Sideways RAM, and ADFS. All the usual options are supported, including sideways printing of charts. One nice feature is the user file, which allows quite extensive notes to be made about each subject.

There is always a danger in using programs like this – it could make those family reunions even more excruciating. So if you see your uncle Derek walking down the garden path clutching great wads of paper underneath his arm, make a run for it!

Andrew Brown

Shareware solution

The world of the BBC micro has never had much to do with Public Domain (PD) and shareware. Plentiful and cheap software is one reason, and software piracy another. It's sad to say, but often the worst culprits are those who should uphold a higher standard – teachers. It's a well-worn cliche that a visitor to the staffroom is more likely to be greeted with a chorus of "Sixteen men on a dead man's chest" than "All creatures great and small."

In their defence, though, teachers usually become pirates for the best of motives – woefully small budgets being the main one. This was not a problem in the past. Now though, with less attention being paid to the machine by big software houses, the situation is becoming more serious. In short, small publishers cannot afford to pay exorbitant launch costs, then see profits nibbled away by piracy. What could eventually happen is that new software will dry up altogether.

No easy solution exists, but I do suggest that the time has come for independent software houses to reassess the PD/shareware model. Co-operative action here might provide salvation for some, and plenty of software for the foreseeable future for the rest of us.

MSXTRA

Errors syntax

I received a letter from a Mr McIntosh, from Halstead, Essex, in which he mentions trying to obtain a copy of a book I recommended. *The Complete MSX Programmers Guide* is out of print, but his local library had found him a copy. He then said in his letter that he thought that *MSX Made Simple*, by Margaret Norman, was a much better buy, because *The Programmers Guide* was full of errors in syntax, some of which he pointed out and gave page numbers for. I've cross-checked all of Mr McIntosh's examples, and none of them appear in my copy. I can only suppose, then, that the copy he received was an early print, since amended. Some copies of this book were ring-bound, while the copy I have is a paperback. I presume that Mr McIntosh has the former.

Pole position

A few weeks ago I reviewed MSX *Out Run*, and my opinion was that it could have been much improved and that Imagine's *WEC Le Mans* should be a better prospect. Well, I was right. In graphics and playability, *Out Run* is totally outclassed. *WEC Le Mans* is faster, has smoother scrolling, and follows the original coin-op more closely.

It's a "simulation" of the Le Mans 24-hour race, and if you don't reach the end of a stage inside a set time, you are out of the race. Although little use of colour is made on the MSX version, the cars and roadside features are well-drawn. The only concession to monochrome colours is your blue Porsche. The scrolling of the track and cars is first class, as good as anything I have seen on the MSX1, and the sound is very good too – engine revs soon lets you know when to change gear.

If you are looking for a good car racing game for your MSX, look no further. Ocean/Imagine is certainly writing some good games at the moment – now if it can only sort out the problem of some of the games failing to run on certain MSXs, I would be even happier.

MSX UK calls a halt

Sad news this week regarding the MSX user group MSX UK. Apparently, although the group has been in existence for some time, it has not been the success that its founder – Craig Bell – had hoped for. I believe that Craig will continue to keep an interest in MSX, and I hope will pass on any items of MSX news that come his way. Sorry to see you go, Craig, and I wish you success in any future venture.

Pac up your troubles

I have just received a copy of Grandslam's *Pac-Land* for review, and found that the loading instructions printed on the insert are wrong. The correct loading instructions should be **BLOAD"CAS:",r** and not **Load** as printed. This is getting quite common, as the loading instructions with *WEC Le Mans* were also wrong. Anyway, watch this space for my impression of *Pac Land*.

Keith Neal

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ARCHIMEDES LORE

ARMed and ready

Now that Acorn is taking a stab at selling its Archies (well, the A3000 anyway) at a price that is just about affordable to the incredibly rich person in the street, the publisher of your favourite magazine decided that it might be a good idea to provide you with several column inches of your very own. So every fortnight there'll be a quarter page just for you. And now, after that amazing introduction, let's get down to it, shall we?

Manual boot

There must be thousands – OK, hundreds – of new Archie owners out there in Biggsville, many of them entirely new to the Acorn machine, who would dearly like to explore the inner depths of this performance micro but don't know where to start.

Well just for you Uncle Bert, the Dabbs Press has just published the *Archimedes Operating System* by Nic Van Someron, which is the definitive guide to the operating machine in your little silicon chum.

The book begins with a chapter detailing the history and development of the RISC operating system. All the more obscure aspects of RISC are dealt with in a thorough but easy to understand and clear manner which, although not for the complete beginner, it is written in a style that can be assimilated with just a little application – switch off *Pacmania* and concentrate!

There are sections on the ARM processor with a full explanation of the instruction set, and the command syntax for ARM assembler.

Whether you're a BASIC programmer, assembly language programmer or both, this book is for you. There's even a chapter explaining how to use the two in unison within the machine.

Archimedes Operating System has lots of listings to help you get the most from the information in the book, but if you're like me and gave up typing in listings when you binned your ZX81, then send a few quid to Dabbs who will mail you a disk containing all the listings ready to use.

Acorny message

And now a message to all readers of this column. Write to me! Only by interaction can the column hope to be interesting and grow. If you've discovered some wrinkle to get an extra feature or turn of speed (!) from the Archie, let me know. If you've recently penned an incredible new software title, send me a copy for review. See you next time.

The *Archimedes Operating System* costs £14.95, and is published by Dabbs Press, which can be contacted on 061 766 8423.

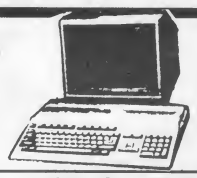
Stop press

Acorn is about to release a brand new desk top publishing package at an affordable price. It offers lots of features such as allowing word processors and other programs to run in windows at the same time as the desk top publisher. More about it next time.

Lucy Brown

DATAWORLD

13 Trinity Street, Gainsborough. DN21 2AL
Tel: Gainsborough (0427) 810151



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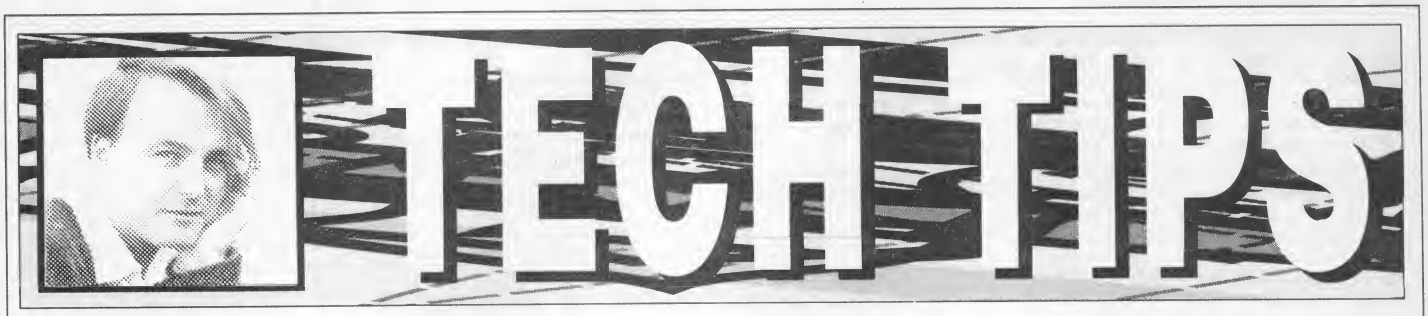


Problems with your computer? Express's Agony column has the answer. Write in strictest confindence to Uncle Techtip.

Best tips win a freebie – so don't forget to tell us your address and machine

TIP
Missing mouse

I have encountered a problem in using a mouse under DOS 3.21 on my Atari PC1 and my experience might save other new PC users an hour or two of puzzlement.

The Atari comes complete with a mouse and with GEM desktop software which automatically loads a mouse driver, so all is plain sailing as long as one sticks to GEM. However, when I loaded another program which should use a mouse pointer, the mouse failed to operate.

I consulted the manual which said: "Installing the mouse driver file (mouse.com) enables you to use the mouse in other applications besides GEM desktop. To install the mouse type *enter* at the MS-DOS prompt. You can also install the mouse by entering *mouse* in the autoexec.bat file".

I followed these instructions and the result was the message "bad command or file name". When I checked the directory on the DOS disk there was no MOUSE.COM. It occurred to me that there might be an identifiable mouse driver on the GEM startup disk. The root directory showed the directory GEMBOOT and this contained MOUSE.COM. It was simple enough to copy this to the MS-DOS working disk and the mouse command worked. I then added the command *mouse* to the AUTOEXEC file and that worked too.

John Leach, Avening, Tetbury

HELP!
Amiga answers

I own an Amiga 500 and I have a few questions that I would be grateful if you could answer for me.

1. When are you given the first mission in *Elite*? I remember that in my C64 version I was given it as soon as I'd docked with military lasers. I have restarted the game several times reaching Competent with an iron-ass. I'm now rated dangerous but still no missions.

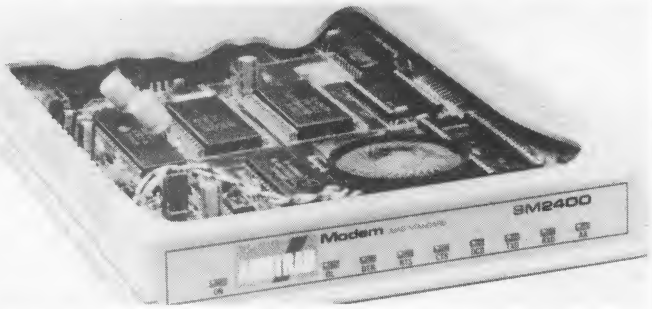
2. Can you advise me on the latest PD comms software for the Amiga? I've heard of a few but don't know which to use.

3. What's the difference between Xmodem and Zmodem?

4. How significant is the saving in time and phone charges when operating in V22 and V22bis modes compared to V21 and V23 and is it worth paying the extra for an Amstrad SM2400 for the V22 and V22bis modes?

5. How does the above Amstrad compare with its more expensive equivalents in terms of reliability and features?

W C Tao, Bristol



• Amstrad's SM2400 modem: Best for the Amiga?

• 1. You're putting me on aren't you?

2. Sure. Buy AZComm, Handshake, Aterm, VT-100, Wombat or Access.

3. Xmodem and Zmodem are both protocols for transferring files across telephone lines via modems. Inherent in telephone communications is 'noise'. It interferes with your transmissions and makes them unintelligible to both human ears and the computer. To overcome this noise various methods have been devised to check the validity of transmitted data and the two protocols mentioned above are but two of these. Xmodem is the older and is consequently slower in transferring data than Zmodem. Either will successfully transfer files.

4. Operating at 1200 and 2400 baud full duplex is significantly faster than operating at 300 baud and 1200/75. Unfortunately, things are never as simple as this. Using faster speeds to transmit data means that you'll have a larger error rate and consequently longer transmission times as data blocks are re-transmitted. Still with good comms software, the higher speeds are infinitely preferable to the lower ones. Yes, lay out the moolah for the modem with better speeds.

5. The Amstrad is an uncommonly good piece of kit. All sources praise it highly. Buy it, you won't be disappointed.

TIP
Keeping up the Pace

With reference to the letter from CR Clement (Express 29) who required help with his Pace 5.25 inch drive. I have some information on a Pace PSD3 5.25 inch drive which might be of some use. The power requirements are as follows:

+5V DC +/-5% 0.5A typical 1.0A maximum 50mV max ripple p-p

+12V DC +/-5% 0.7A typical 1.0A maximum 100mV max ripple p-p

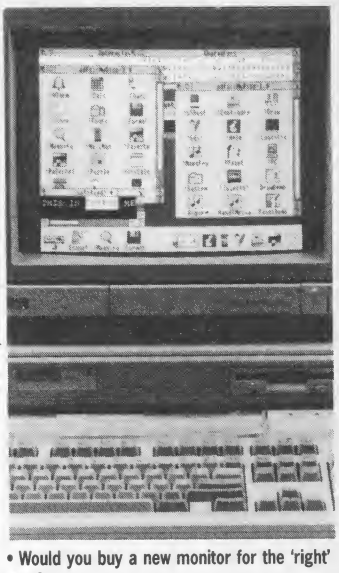
The +5V is used for the logic circuit and the read/write circuit. The +12V is used to drive the motor to rotate the disk and is also supplied to the stepping motor and the read/write. The BBC computer appears to have +5V at the disk interface (34 pin socket). However, it appears that the drive requires separate +5V and +12V power supplies. The auxiliary power socket on the BBC micro has the following connections: 0V, +5V(1.25A), +12V(1.25A), – 5V(75mA). To get a cheap power supply with both +5V and +12V it may be cheaper to build one yourself. I have a suitable circuit diagram if it is required.

G P Burkitt, Aldershot, Hants

HELP!
Acorn nut

The new Archimedes A3000 looks like just the computer I'm after. I have just a few quick questions to ask you knowledgeable people at Express.

Firstly, monitors. I've seen the Archimedes 310 and 440, and the monitor supplied with these has the Archimedes logo. I intend purchasing an A3000 and monitor



• Would you buy a new monitor for the 'right' logo?

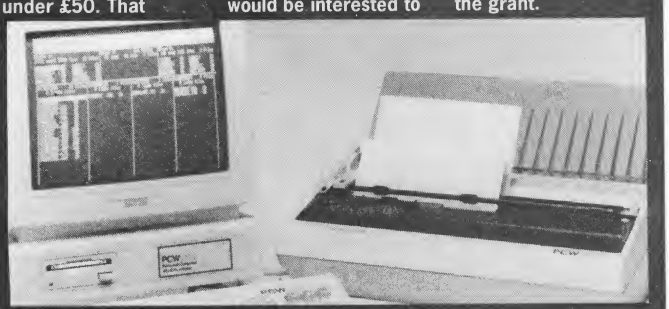
TIP OF THE WEEK

A friend of mine is a student living in bedsit land. He uses an Amstrad PCW9512 which has a good but very noisy daisy wheel printer. His neighbours and the landlord are definitely not amused at the clatter.

My mate enquired about the cost of acoustic hoods but could find nothing under £50. That figure makes quite a hole in a student grant. So he rigged up a a cardboard box and glued some egg boxes inside. The result was an amazing drop in the level of noise. In view of the fact that your excellent magazine may well feature the advertisements of acoustic hood manufacturers, I would be interested to see whether you are prepared to print this tip (I see, it's the old 'I'll try X ploy to get my letter printed, huh? – Uncle T).

Mike Coleman, Eastbourne, Sussex

• If your 'friend' would care to write with their address, they will receive a subscription to *Express* – thereby saving even more of the grant.



• An acoustic hood from eggboxes (salmonella-free) for your noisy 9512 printer

now and upgrading to 440 when I've got enough moolah. I know it's possible to buy an equivalent monitor with the Acorn logo instead, but what I want to know is can you get the monitor with the Archimedes logo with the A3000? I know it's only a minor quibble, but it would make my A440 system look complete when I get it, instead of me having to buy a new monitor system totally (now I know why this letter was written in crayon – Uncle T). Please help to save my life.

Secondly, appearances. I've seen too many different reviews of the A3000 to keep track of, but every one had the logo on the A3000 machine different! For instance, your good selves printed a photo of an A3000 in issue 28 which had the word Acorn on the top left of the keyboard and a BBC owl with A3000 and the power and disk lights next to it on the top right. But this week in issue 29, your review of the A3000 has the BBC owl substituted with an Acorn logo and above that a bigger BBC owl! What's going on chaps?

Finally, where can I get a nice monitor plinth as shown in issue 28 in the A3000 photo.

Ken Davies, Bangor, Gwynedd

• OK, maybe – just maybe – this letter is actually serious, so here goes. Firstly: Yes. Secondly: Dunno. Thirdly: In the box when you purchase the computer and monitor.

HELP!
BBC revisited

I have recently sold my BBC micro computer in order to purchase an Amiga A500. This has left me with an Epson MX-80 type III printer. Is it possible to use this printer with the Amiga for word processing and graphic dumps? (Using *Photon Paint*, *Digiview* and *Deluxe Paint III*).

One more question. Does the Amiga BBC emulator exactly reproduce the BBC or is there additions or subtractions in the BASIC language? Any help would be greatly appreciated.

Ross J. Taylor, Clwyd, North Wales

• The printer will work perfectly with your new machine. I haven't seen the emulator myself, but I'm told that it provides a near perfect version of the BBC BASIC language with the minor subtraction of some machine specific commands.

HELP!
Sheep in wolf's clothing

I have recently been phoning around various retail and spares outlets with the aim of obtaining an A1000/A2000 case for my A500. So far I have drawn a blank, so I would be grateful for your advice, not only for the above, but also as to the feasibility of transplanting my machine into the new box and the internal fitting of 2nd drives etc.

Keith Lee, RAF Marham

• Why would you want to do such a thing? It's twisted and perverse. If you really must try, then contact Commodore on 0628 770088 – or your camp psychologist who will be able to offer even more help. Putting A500s into A1000 cases indeed!

• Can you put Amiga A500 innards into an A1000/2000 case? (After putting a Citroen 2CV engine in an Escort, presumably.)

HELP!
PCW printer

I have a PCW 8512 with an ageing printer which is losing the tops and bottoms of the letters such as h, l, g, y, p etc.

However, I have been offered a Star LC10 printer at a very reasonable price, and am considering purchasing this item. I wonder if you could tell me whether or not it is possible for me to use this with *LocoScript*.

Rev. J Padmore, Bristol

• Yes. But you need two things. First, an RS232 interface (check the mail order ads in *Express* – they should be about £50 or so) which plugs into the back of your PCW; secondly, *LocoScript 2*. The version you get with the PCW8512 or 8256 can't work with printers other than that supplied. *Loco 2*, however, lets you print out automatically to any third party printer. Locomotive are on 0306 740606 and *Loco 2* costs £25, coming with a very good manual.

Print quality from your supplied PCW printer might be improved by adjusting the blue or red plastic pressure setting knob underneath the black plate on the printer on the right hand side.

HELP!
Addressing Archie

Please, please could you help me? I've been wanting to write to Acorn for a while now, but so far I haven't been able to because I cannot find their address anywhere. So could you please give me their address so that I can finally say what I want to them (hope it isn't anything nice – Uncle T.). Also can you answer these questions for me?

1. How much would an Archimedes 310 with a colour monitor cost?

2. Can the Archie display all of its palette of colours on-screen at once?

3. When will Elite II be available? And will it be available for the Archie and Amiga?

4. How does a PC emulator work? Is there a PC emulator for the Amiga 500 and if so, how much is it?

5. Is there an Amiga, ST or MAC emulator for the Archie?

Elliot Gould, Weston Turville, Bucks

• Address your vitriol to Acorn at Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN.

1. Megabucks! The basic model 310 costs £835 and a suitable colour monitor will cost you anything from about £200 upwards.

2. Yes.

3. When programmer David Braben decides it is ready. Strictly between you and me, off the record, nudge nudge, hazarding a guess, I would say almost certainly for the Amiga and probably for the Archie.

4. Emulators work in one of two ways. Either you have a plug-in board with all the chips one would find in the machine to be emulated. When software is running, control is passed to this board and the application is fooled into thinking it is running on the correct machine. Or emulation is provided by software 'hiding' in the machines memory somewhere (as is the case with *PC-DITTO* for the ST). All calls to the hardware by the application are directed through, and interpreted by, the emulator, converted into native instructions, then passed to the hardware.

5. No.

TIP
Exo-lent

Here's a tip I've found for one of the games on Hewson's *Premier Collection* for the ST.

In *Exolon*, you can stop the in-game music and replace it with sound FX, despite what the instructions say! Just press the F key while playing, but do it very quickly, otherwise the tune just restarts. The game plays much better with spot effects, since on some of the more chaotic screens you can listen for when the ground canons fire at you. There's also some sampled sound of glass smashing when aliens are hit. Dab F again to return to the music.

Jann Kelventa, Bootle, Merseyside

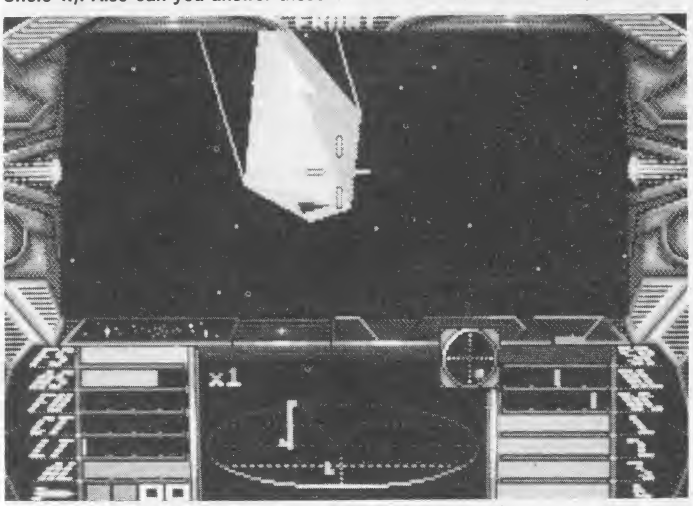
BUG OF THE WEEK

Here's a bug for Amiga *R-Type* players:

If you collect the shield orb on Level One, and manage to survive to Level Four without losing it upon picking up the second orb [illegible]

gems known in [illegible] Europe are found mostly under decaying vegetation and extra weapons people can never get to

Chrysomela populus the [illegible] species of this



• Elite: Great on the 16-bit machines, but how about the Archimedes...?

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Keeping up with the Joneses

Rik "Indy" Haynes whips up a storm while previewing the latest games from Lucasfilm

INDIANA JONES AND THE LAST CRUSADE LUCASFILM GAMES/US GOLD

US company Lucasfilm Games is launching two games based on the new Indiana Jones movie, *The Last Crusade*. The first, an arcade action game centred around the film's best chase and fighting sequences, will be released in August – when the movie premières in the UK – on Spectrum, C64, CPC, ST, Amiga and PC. The second game is a graphical adventure due for release on ST, Amiga and PC in September. Hopefully, both games will offer something special, as Steven Spielberg and George Lucas helped design them!

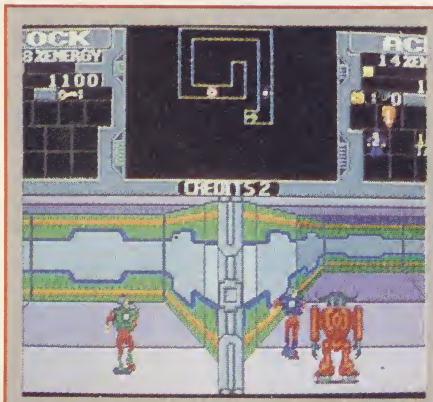
• On the left, Indy the adventure, and on the right we have the arcade game, a co-development between Lucasfilm and US Gold

LICENCE TO KILL DOMARK

Also on the film tie-in front is *Licence to Kill*, based on the latest James Bond movie. As 007, you'll pilot a helicopter, avoid sharks and underwater thugs, and end up chasing the bad guy in a stolen crop duster! Spectrum, C64, CPC, ST, Amiga and PC versions of *Licence to Kill* should be available later this month to coincide with the cinema release of the film.

BLOODWYCH IMAGEWORKS/MIRRORSOFT

Bloodwych is a one or simultaneous two-player role-playing adventure game, placing the players in a quest to find four crystals – holding the key to absolute power – hidden somewhere in a castle riddled with strange inhabitants. Could this be a worthy successor to Mirrorsoft's *Dungeon Master*? *Bloodwych* on the ST and Amiga will be released at the end of next month, with Spectrum, C64, CPC and PC versions following shortly afterwards.



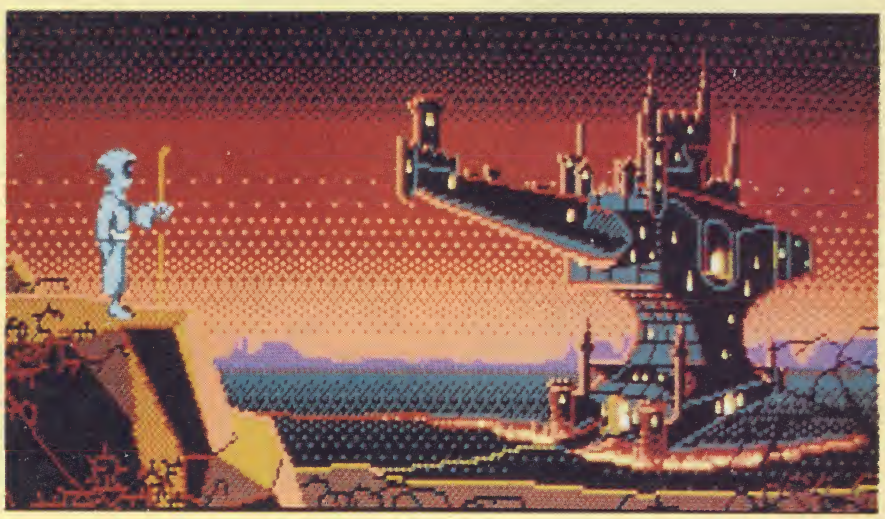
XYBOTS TENGEN/DOMARK

Xybots, the latest Tengen coin-op conversion, is a split screen, one or simultaneous two-player strategic shoot-'em-up, set in a futuristic underground labyrinth infested with the monstrous metallic *Xybots*.

Unlike many games, *Xybots* allows you to team-up with the other player, or go it alone around the masses of mazes. Out later this month on Spectrum, C64, CPC, ST, Amiga and PC.

LOOM LUCASFILM GAMES

Lucasfilm is also working on its first fantasy adventure game, *Loom*, which is set in a mythical world ruled by Shepherds, Blacksmiths and Glassmakers, with you placed in the role of a young Weaver somehow entangled in the conflict between good and evil. *Loom* will come with a 30 minute audio drama cassette, to help increase your understanding of the game.



● Doubles all round this week! *Millennium 2.2* gets a big, fat five-star rating and Fielding Mellish flies to cloud nine with *Chuck Yeager*. Back down to earth, though, *Rampage* bites the dust, and *Navy Moves* threatens to sink without trace...

RAMPAGE

ACTIVISION

Amiga • £24.99dk
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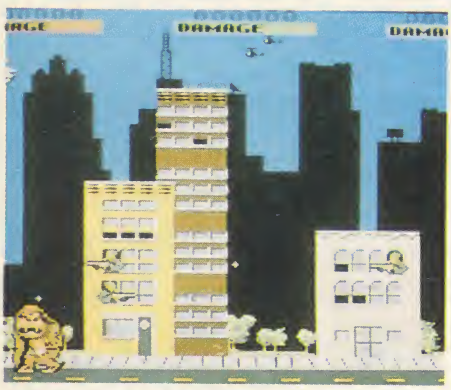


• You could make it with Play-Doh!

Remember the Bally Midway coin-op *Rampage*? Neither did we, until we visited the seediest-looking arcade in Southend and saw a *Rampage* collecting cigarette ash (we think!) behind the soft drinks vendor.

So was it worth resurrecting this dinosaur onto the Amiga...?

● GAMEPLAY

Rampage is a destroy-'em-up inspired by those tacky horror B-movies (no doubt to be shown soon on BBC2's Moviedrome) like *Godzilla the unconvincing plasticene model destroys Tokyo*. With such inspiration how could it fail to go wrong? Quite easily as a matter of fact, as there's no gameplay, chronic audio-visuals and an immediate feeling of disappointment after loading it.

● GRAPHICS AND SOUND

What passes for graphics and sound consists of Play-Doh-like monsters, out-of-proportion soldiers, and the silliest-looking helicopter sprites we've seen since infant school – all accompanied by a plethora of white noise to be heard at every possible moment.

● OTHER VERSIONS

Out a couple of years ago on the 8-bits and ST, it wasn't any great shakes on these micros either. But at least the coin-op was "in" then.

● EXPRESS VERDICT

Quite a mystery. How can the same company produce *Rampage* and *Millennium 2.2* in the same week? We asked ourselves the same question, but couldn't think of any plausible, sane or believable answer.

Rampage was lucky to be awarded a star at all.

✪

Rik Haynes

NAVY MOVES

DINAMIC

C64 • £9.95cs, £14.95dk
Also on Spectrum, C64, CPC, ST, Amiga
Out soon on PC

With the sequel to the lacklustre *Army Moves*, Spanish software company Dinamic is pinning its hopes on *Navy Moves*. What's a life on the ocean wave like these days?

• C64: Waving a mine goodbye

● GAMEPLAY

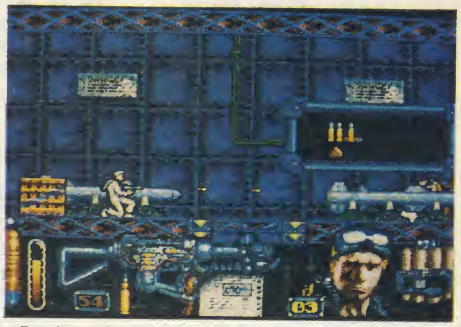
Assigned to take out the enemy's new U-5544 nuclear submarine, you'll have to complete a two stage ordeal before getting the chance. Stage one throws you in a dinghy-type motorboat travelling along in a horizontally-scrolling avoid-'n'-shoot-'em-up battling against the likes of enemy motorboats and mines, and the occasional shark. Stage two is a standard platform shoot-'em-up inside the sub.

● GRAPHICS AND SOUND

The red skyline is really well done in stage one's seascape, as are the rest of the visuals, with some attractively drawn sprites to be seen in both stages of the game. Audio is OK, with standard spot-effects in-game.

● OTHER VERSIONS

We've only seen the other versions in prototype form➤



• Entering a 16-bit sub-culture

MILLENNIUM 2.2

ELECTRIC DREAMS

Amiga £24.99dk
Also on ST
Out soon on PC

Possibly the most eagerly awaited strategy game ever, *Millennium 2.2* has finally blasted off.

● GAMEPLAY

If you're bored with controlling mundane Earthly forces, then *Millennium 2.2* may just appeal to your megalomania, as it throws you into the hectic task of rebuilding civilisation after the entire population gets wiped out in a planetary collision. All that's left is you and 100 colonists on the moon, so you'll not only have to survive but also pick up the shattered pieces of humanity.

In game controls are via icons and selection screens, as you strive to balance life support, production and research with energy and defence – while keeping an eye on your resources.

● GRAPHICS AND SOUND

Visuals are subtle rather than stunning, but are well above the norm for a strat game. Audio is a little disappointing but not as much as the appalling intro sequence – we doubt whether this will attract many punters in the stores.

● OTHER VERSIONS

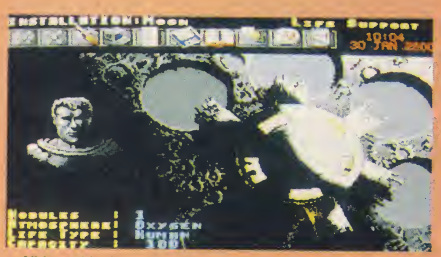
ST *Millennium 2.2* differs from the Amiga version only in audio quality – luckily it's the gameplay that counts in this one. We haven't seen the PC version yet – watch out for an update.

● EXPRESS VERDICT

Millennium 2.2 offers a lasting challenge backed up with atmospheric visuals and more than a touch of originality, thanks to its workable blend of adventure and strategy.

✪ ✪ ✪ ✪ ✪

Rik Haynes



• All I need is the air that I breathe...and there's not much

• Checking on the batteries – let's hope they're Duracells

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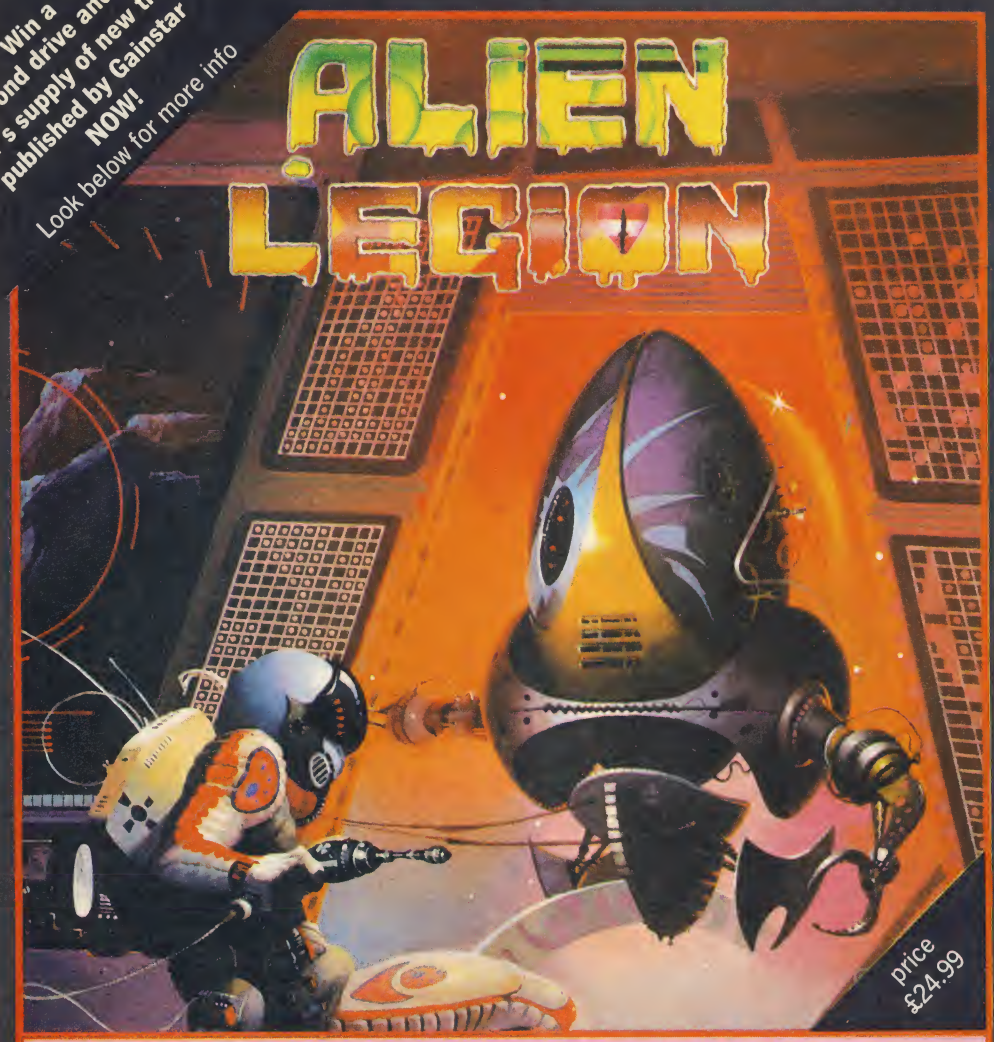
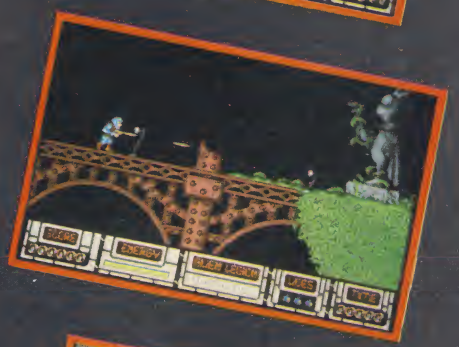
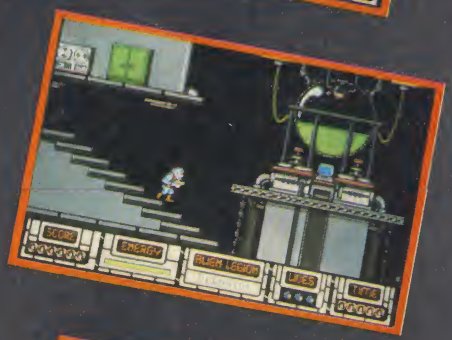






ALIEN LEGION

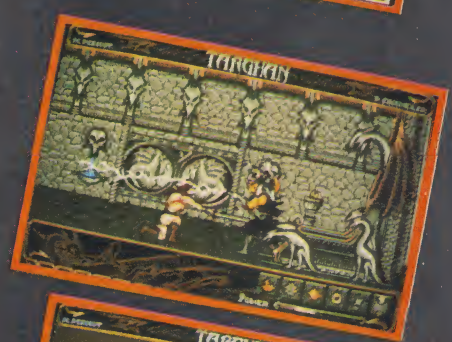
The ultimate horizontal scrolling arcade game. You're confronted by hundreds of aliens, monsters and things from outer space. Your goal is to rescue your spaceship and fly away. Be aware warrior, this could be your last laugh.

TARGHAN

price £24.99

Far from Edengarhn is the castle of the evil one.
Far from your village, a lord keeps the secret, such a powerful lord that he cannot be human, a creature floating a world that dies and grows again.

Targhan is an adventure-action game with more than 120 landscapes and 40 different characters. The game is playable on either keyboard or joystick. The game offers digitised sound and outstanding graphics.
It will be released on Amiga, Atari and PC (EGA, VGA and CGA) by the end of May. The game will run on both colour and mono screens.



To enter our competition please send your warranty cards of either Tech, Alien Legion or Targhan together with proof of purchase and complete the following:

I like the games published by Gainstar because .....

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Closing date September 1, 1989

GAINSTAR

➤ thus far, but the Amiga and ST *Navy Moves* are already looking and sounding good.

● EXPRESS VERDICT

Navy Moves is a better game than its predecessor – but that wouldn't take much. The first stage gets a little tiresome after a few plays, and the second stage isn't that enthralling. *Navy Moves* is good for a couple of plays, but not much else.

✪ ✪ ✪

Rik Haynes

CHUCK YEAGER'S ADVANCED FLIGHT TRAINER

ELECTRONIC ARTS

PC • £24.99dk
Also on Spectrum, C64, CPC, Apple II

• VGA: Which one's Chucki Yeag flying?

Look out Ginger, bandits at one o' clock. Pranged Jerry into the drink, limped home on a wing and a prayer to hearty banter in the mess with the other new bugs...

● GAMEPLAY

Yes, another flight simulator – ho hum – but this one is different – it actually has the vital ingredients realism, excitement and fun built in.

You elect to fly any one of 18 aircraft, ranging from the biplane Sopwith Camel to advanced test aircraft such as the high-flying X-15 and the Space Shuttle. You can change planes in mid flight but you must be within the limits of the new plane or else a sharp plunge into Mother Earth may ensue.

The point of this simulator is to teach you advanced flying techniques. To accomplish this, there's a cassette tape included in the packaging with Pa Yeager laying out his funky rap detailing barrel rolls, Immelmanns, the Cuban 8 and splits. On-screen tutorials from the master himself take you step by step through the intricacies of staying airborne.

Once qualified, you can fly with Chuck or race against six computer adversaries.

● GRAPHICS AND SOUND

Graphics are excellent – fast and smooth, with lots of ground detail, mountains, buildings etc. You can also chose to ride in a spotter plane and watch your own aircraft performing its manoeuvres. Instrument panels are well drawn, but with the press of a key you can remove them, thereby providing you with a full-screen, out-of-the-window view which is fast and furious. There's a playback option to allow you to critically review your flying at leisure, and you can zoom in on the simulator world at a magnification up to 256X.

Sound? Well, this *is* the PC, and even Electronic Arts is restricted by hardware limitations. Bung your favourite good-rockin' R 'n' B tape into the ghetto blaster and reach for the cliché – sorry, skies.

● OTHER VERSIONS

The 8-bit implementations of this complex simulator are extremely well done – fast and colourful.

• VGA: Where's the in-flight entertainment?

● EXPRESS VERDICT

Tally Ho...!

✪ ✪ ✪ ✪

Fielding 'Tin Legs' Mellish

• EGA: Cross that bridge when you come to it

The star's the limit

***Rik Haynes takes to the skies with* Flying Shark, *but quickly comes down to Earth after seeing* Star Trek**

STAR TREK

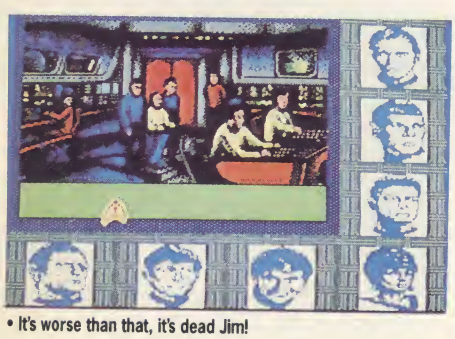
Firebird/Microprose ● C64 ● £9.99cs £14.99dk ● Also on ST

Probably the most pirated ST game ever, thanks to an early version being "distributed" on the pirate network about a year before it finally became available in the stores, *Star Trek* has just landed on the C64.

At least the ST version had digitised graphics and sound – both of which are sadly lacking in the C64 incarnation. All that's left is the gameplay – and there wasn't any of that in the first place. C64 *Star Trek* is strictly for Trekkies whose hobby has stretched to the obsessive stages of insanity.

✪

• You'd have to be crazy...



• It's worse than that, it's dead Jim!

CRAZY CARS II

Titus ● Spectrum ● £8.99cs ● ST version reviewed in *Express* 11 ● Also on CPC, ST, Amiga ● Out soon on C64, PC

We haven't seen a Spectrum racing sim this bad for a long time. Stick to Ocean's *WEC Le Mans* for your boy (or girl) racing.

✪ ✪

FLYING SHARK

Firebird/Microprose ● Amiga ● £24.99dk ● ST version reviewed in *Express* 3 ● Also on Spectrum, C64, CPC

This great little vertically-scrolling shoot-'em-up features attractive visuals, high quality soundtrack and sound FX and one of the best cheat modes we've ever seen.

✪ ✪ ✪

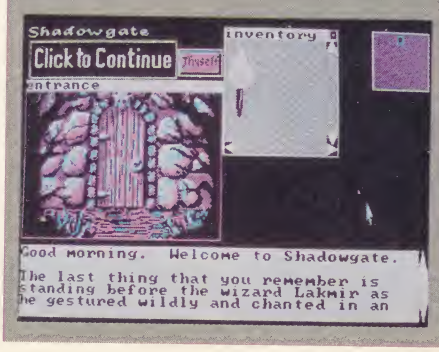
• Watch that Fokker!

SHADOWGATE

Mindscape ● PC ● £24.99dk ● Also on ST, Amiga, Mac, Apple II

Frustratingly difficult, unrewarding but totally addictive role-playing cum adventure from the makers of the critically acclaimed *Deja-Vu*. CGA graphics are well bad though.

✪ ✪ ✪ ✪


Shadowgate
Click to Continue
Inventory
Entrance
Good morning. Welcome to Shadowgate.
The last thing that you remember is standing before the wizard Lakmir as he gestured wildly and chanted in an

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Full details on next page

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★ WORLD Extensive gazeteer of places in the World
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★ GETTING STARTED ON C Introductory lessons and examples
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★ PRO-COMM Menu-driven communications. 2 DISCS
★ PC-DIAL Buttonware communications program
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★ WILDCAT Complete Bulletin Board system. 3 DISCS
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★ STAR WARRIORS - Quantolds, Rescue, Flightmare, Kamakaze, Space Wars, Emergency Mission
★ KEEP THEM AMUSED Burgler Blaster, Grime, Racer, Ninja, Caverns and Galaxy
★ FACE THE ACTION Batalia, Tank, Moonbase, Blortil, Gemini
★ BLOCK & TACKLE Nemon, Oix Xonix, Blockade, Lazer, Berzerk
★ GOOD SPORTS PC Tennis, Teed Off (Golf) Yachting in the Bermuda Triangle, Armchair Quarterback (Football)
★ SEEK & DESTROY Galactic Conquest, Daleks, Depth Charge, Lazy Monday, Intercept
★ SPY CATCHER Master Spy, Brimstone, Mad scientist, Raider
★ LOST VEGAS - One Arm Bandit, Roulette, Backgammon, Wheel Of Fortune, and Biorhythms
★ SKILL & STRATEGY - Frigate, Stock Exchange, Big Rig
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★ PC CHALLENGE - Chess, Othello, Entrap, PCGolf, Hexplode, Air Traffic Controller
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★ GAMBLERS DEN Three games- 21, Poker and Pontoon
★ BLACKJACK features excellent card pictures and game play
★ PUB GAMES Dominoes and Cribbage
★ PATIENCE APPLENTY 3 games - Solitaire, Pyramid and Sol
★ CARD SCHOOL 3 games - Canasta, Gin Rummy & Heart
★ MAHJONG A fascinating taste of the Far East
★ TWO BRIDGES Two versions of the card game
★ QUIMBEE (YAHTZEE) and FIVE. Two dice-based games

PROJECTS & PASTIMES

★ WHEEL OF MISFORTUNE Based on the TV word-guessing game
★ OPUS-1 Extensive general knowledge quiz
★ TRIVIA QUIZ Many questions, 5 categories. 2 DISCS
★ TREK TRIVIA Fascinating quiz based on famous TV series
★ BIBLE QUIZ Quiz game based on the Holy Bible
★ MUSIC TRIVIA Quiz based on musical questions
★ GET LUCKY Adult trivia Quiz and strip poker games
★ ADULT HUMOUR Large collection of rather rude jokes
★ GAME OF LIFE Fascinating animated graphics game
★ PC JOKES A set of funny but harmless practical jokes
★ ORIGAMI Study paper folding (needs BASIC interpreter)
★ GREETINWARE DIY computer greeting cards with demos
★ SHOWING OFF YOUR EGA Demo screens, animated patterns
★ MANDELBROT MAGIC Graphic demonstration and designer
★ POPSTAR First in a series of unusual UK games
★ SNARF High quality EGA game plus EGA Breakout
★ TANK BATTLES A two-player challenge
★ STAR TREK II The next generation featuring Morning Cloud
★ STAR TREK The original classic game, text & graphics
★ PINBALL WIZARD A choice of five different pintables
★ PINBALL FANATIC Five more different pintables

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Computer Chaos

More true life cases of electronic anarchy from Mel Croucher's Archives

Carson City, Nevada, USA

The State Supreme Court condemns Philip Preston Anderson for cheating at blackjack in a Las Vegas casino during the Christmas of 1987.

Anderson is tired of employing hunches and gut reactions, and has gone for something a little more intimage by strapping a microcomputer to his calf. Wires run down to switches in his shoes so that he can tap his toes to keep track of the cards already played. The computer then calculates his gambling odds and sends 'vibratory signals to a special receiver' which is also attached by wires.

The 'special receiver" is Mr Anderson's penis.

Rochester Democrat and Chronicle

Massachussets Institute of Technology, USA

When the old and tired MIT 7094 is finally closed down, it is discovered that a low-priority job has not yet been run.

The operating system has delayed execution of the program in question for no less than six years, three months and two days.

Operating Systems Concepts

Pittsburgh, Pennsylvania, USA

In 1988 the Pittsburgh City Water Authority switched over to a new computerised billing system.

I thought you might like to see a copy of my water bill, and answer the question, 'why don't programmers know that mechanical dials wrap around?'

Previous meter reading 988: Current meter reading 2: Amount used - 986 units... your account has been credited.

Tom Lane

Riyadh, Saudi Arabia

Fed up with constant bickering between his many wives, thirty-eight year-old Arabian millionaire Saleh-el-Modiia installs a computer system to organise his harem.

He keys in his ladies' ages, birthdays, anniversaries, clothes sizes, menstrual cycles, sundry medical details and sexual proclivities and the machine coughs up a weekly schedule for the would-be desert Casanova.

The computer makes a cock up, to coin a phrase, but Saleh refuses to get rid of the machine believing it to be infallible.

One of his wives gives a tearful interview, relating the sad story of how the computer forces her husband to adhere to a punishing schedule, and the reason why he is now in hospital suffering from mental and physical exhaustion.

Dubai Gulf News

China Lake, California, USA

On 29th July 1987 a programmer is cleaning his PC, which has been in use for some time and built up a static charge on the screen.

He applies window cleaner with a tissue, but when his finger hits the screen it causes a spark which ignites the cleaning alcohol and detonates an explosion. This results in Red Alert number X7-S-87-01.

The reason for such panic is because the PC is in the middle of the Naval Weapons Centre, linked to the Goddard Space Flight Centre, where alcohol, explosions and accidental warfare are strictly not allowed.

New York Times

University of Delaware, USA

Basit Farooq Alvi is a 19 year-old student in Lahore, Pakistan, who runs a small local computer store. In 1986 he writes a computer virus 'for fun' and gives it to his brother Amjad.

In 1988, the University of Delaware databases are among several institutions whose databanks have been heavily infected by a nasty wee virus codenamed '©BRAIN', but the culprit is immediately traced. Mr Alvi has made the mistake of including his name, address and telephone number in the subcode.

The Chronicle of Higher Education

Shoot from the Lip... *the week's most quotable sayings*

"In ten years time no-one will believe the hours we spend now staring at VDUs."
Eye specialist Tony Adams looking into the future

"The Law Commission's recently produced working paper on computer misuse wholly fails to recognise the need for a computer crime statute.

"Existing criminal law is inadequate to deter hackers. It is also confusing and illogical."
Practising barrister Sean Overend being pessimistic about computer crime

"The personal computer in a networked environment is getting close to competing with mainframes as the backbone of the corporate data processing system."
Martin Banks

NEXT WEEK

Sing something sample

New samplers – and the best for your machine

Quicker by train

How to get the best training for your money

Expert analysis

The latest in artificial intelligence

French sauce

A look at what's new in French games

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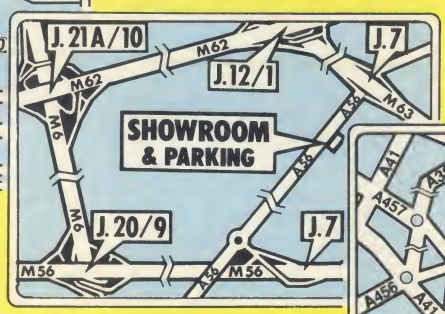

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